TECHNOLOGY DEPT.

First Copy

A National Newspaper for Every Branch of the Industry

Automotive Daily News

CARS · SHOP EQUIPMENT · TRUCKS · AVIATION · PARTS · ACCESSORIES · TIRES

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Duco Color Service Plans Simplification of Range In Automobile Colors

Proposition Would Reduce Current Range of 11,500 Duco Colors to 290 Calibrated Variations

New York, Oct. 25.—A proposal of the Duco Color Advisory Service to reduce the current vast, unwieldy, impractical automobile color range, consisting of 11,500 Duco colors, to a complete and practical working variety of approximately 290 variations seems to fall in line with that much advertised phrase, "A step in the right direction."

In 1910 the standards committee of the Society of Automotive Engineers decided to do something to eliminate wastage resulting from too many car parts of indiscriminate sizes. As a result of this undertaking more than 200 automotive parts and materials have been satisfactorily standardized. A reduction from 1,600 varieties of steel tubing to seventeen varieties in thirteen thicknesses is a typical example of the savings effected by this procedure.

The National Automobile Chamber of Commerce is now engaged in the project of reducing the range of unprofitable car models now being offered to the public.

The proposition outlined by the Duco Color Advisory Service is concerned with the reduction of automobile colors from the current range, consisting of 11,500 Duco colors to a complete and practical working variety of approximately 290 variations. Explicit symbols replace vague, conventional color names and a greater range of finer color harmonies can be easily determined with "Duco Calibrated Colors," it is claimed.

The proposition reads as follows: "The preponderance of automobile color variations, totaling 11,500 today, and increasing at the rate of approximately 800 new developments each year, is brought about largely by the car builders' acceptance of off-colors. Naturally a situation such as this is productive of considerable concern to the interested parties.

"On the one hand, the automobile manufacturer is obliged to select suitable colors for appropriate harmony from a vast array of unor-

(Continued on Page 2)

AUTOMOTIVE STEEL BUYING IMPROVES

Youngstown, O., Oct. 25.—Automobile steel buying this week contributed in part to a bulge in mill schedules of flat rolled steel manufacturers, the improvement being sufficient to start two sheet plants idle recently. The gain in automobile steel releases so far has not been sufficient, however, to cause much change except in finishing mill schedules.

Measured by ingot production, Youngstown district steel plant operations are estimated at 19 per cent. of capacity by valley trade authorities. This compares with last week's average of 18 per cent. Production of sheets, strip and tin plate are reported a shade higher, while pipe output is off slightly.

Republic Steel Corporation operations in the district are reported unchanged at 18 per cent., increased activity at the corporation's Bessemer plant offsetting a decline in open hearth steel production. Ap-

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CAR FINANCING IN CANADA OFF FOR SEPTEMBER

Montreal, Oct. 25.—The figures for automobile financing compiled by the Dominion Bureau of Statistics show a decrease in September, 1932, as compared with August, 1932, and indicate a falling off in financing, as compared with the corresponding month (September) in 1931. The per cent. of change is 27.3.

The total number of cars financed was 5,027 in September, 1932, 6,065 in August, 1932 and 5,957 in September, 1931; and the amount involved was $1,900,831 in September, 1932, $2,184,691 in August, 1932 and $2,613,934 in September, 1931.

New cars financed were 1,508 in September, 1932, 1,709 in August, 1932, and 1,767 in September, 1931; while used cars financed were 3,519 in September, 1932, 4,356 in August, 1932 and 4,190 in September, 1931.

Financing of new cars amounted to $941,610 in September, 1932, $1,023,127 in August, 1932 and $1,239,434 in September, 1931. Financing of used cars amounted to $959,221 in September, 1932, $1,161,564 in August, 1932 and $1,374,500 in September, 1931.

KELLY-SPRINGFIELD CO. LOSES PATENT SUIT

Washington, Oct. 25.—The Kelly-Springfield Tire Company has lost its appeal to the United States Supreme Court from New York court decisions denying recovery of damages claimed as the licensee of the Overman Cushion Tire Company's patent in a suit brought against the Goodyear Tire & Rubber Company.

The high court refused to review the decision of the New York Circuit Court of Appeals, which dismissed the Kelly-Springfield Company's petition on the ground that it showed no statutory right to damages. The petitioner contended that from January 1, 1924, it held a right of notice and objection sufficient to debar a license of the Overman

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RAY SACKETT HEADS ADVERTISING FOR CONTINENTAL MOTORS

RAY SACKETT

Detroit, Oct. 25.—Announcement was made today by President W. R. Angell of the Continental Motors Corporation of the appointment of

(Contnued on Page 2)

T. L. HIBBARD WILL DESIGN CARS FOR CADILLAC MOTOR

Detroit, Oct. 25.—Thomas L. Hibbard, automobile body designer, who recently returned to this country after ten years spent in Europe designing cars for King Alfonso of Spain, M. Lucien Saint, governor general of Morocco; Marlene Dietrich of movie fame; Ambassador Patino, South American tin magnate, and a host of others, is now devoting his talent entirely to the development of new Caddillac creations.

Since early this summer Hibbard has been on the staff of the art and color section of Fisher Body Corporation, working on Cadillac designs, according to L. P. Fisher, president of Cadillac.

Many of the cars designed by Hibbard have captured a long list of elegance competitions in France, Germany and Spain. His cars have won the Grand Prix in similar competitions at Monte Carlo, Cannes, Paris and le Touquet.

Hibbard's work first attracted attention when he was with the Rubay

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WHOSE PROBLEM IS THE USED CAR PROBLEM?

Read Mr. Lumley's Article on Page Four This Issue

New Passenger Car Sales in 1932 Estimated at 1,100,000 Units

This Total Represents 43.2 Per Cent. Decline From Last Year and Is 62.2 Per Cent. Below The Five Year Average

By RAY B. PRESCOTT

New York, Oct. 25.—At the end of the first nine months this country had absorbed 940,000 passenger cars. Last year in the same period the industry sold 1,652,000 cars, which means that the sales this year are 43.2 per cent. below those of last year, while production was 966,119 cars, as against 1,764,353 last year in same periods, which is 46.2 per cent. behind. This is a very healthy condition, because it shows that, with production schedules so much under sales, no excess of cars is being accumulated. It actually reflects a substantial reduction in stocks since the first of the year, as there is an actual difference between production and sales of only 26,000 units, with no allowances for exports and foreign assemblies.

In the five-year period between and including 1927-1931, there were annually sold in the United States an average of 2,900,000 passenger cars. Now the sales figures seem to indicate that there will be approximately 1,100,000 cars sold this year. This is 62.2 per cent. below the average of the last five years.

As would be expected, the Middle Atlantic states, the strong industrial and financial section of the country, has actually registered a relative 12 per cent. gain over the sales for the country, because, while the sales for the country declined 43.2 per cent. in the first nine months of this year as compared with the same period of last year, this section of the country fell off only 36.5 per cent. In other words, this part of the country purchased a larger proportion of the cars sold than other sections.

It is somewhat difficult to explain why sales dropped only 40.6 per cent. in the West South Central section of the country during the first nine months of this year, as compared with this period last year, when seemingly stronger sections declined more than this. It seems strange that a section of the country whose principal crop is cotton, should be able to register a relative increase of 6.5 per cent., while the stronger industrial sections with but two ex-

(Contnued on Page 7)

S. E. A. PLANNING 20 MAINTENANCE CLINICS IN AS MANY CENTERS

Philadelphia, Oct. 25.—In preparation for a campaign of the Shop Equipment Associaters to organize and conduct automotive maintenance clinics during 1933 in twenty selected automotive distribution centers, Ralph E. McConnell, Philadelphia, chairman of S. E. A. Clinic Activities, has written to show managers, trade publication editors and the members of the S. E. A., outlining plans in a special eight-page circular and inclosing a sample mail advertising broadside for these educational events.

"How to Make More Money Merchandising Maintenance" is the theme of the circular, the answer being "In the Shop Equipment Associates' Co-operative Jobber Clinics," based on the idea that "the best equipped shop gets the business." It is pointed out that the industry is on the threshold of a new era of maintenance merchandising, in which greater opportunities than ever exist for those manufacturers, jobbers and jobbers' salesmen, who have a thorough knowledge of the modern developments in the use of maintenance equipment, tools and supplies. The circular states the time for the big campaign is a happy one, as indicated by fundamental business indices, marked increase in

(Continued on Page 5)

M. E. M. A. ANNOUNCES 19 NEW MEMBERS ON ROLLS SINCE JANUARY

New York, Oct. 25.—Nineteen new members have been added to the rolls of the Motor and Equipment Manufacturers Association since it began operating as a strictly manufacturers' association at the beginning of the year, according to a report submitted to the M. E. M. A. board of directors at their meeting in Toronto on October 18 by F. G. Wacker, chairman of the membership committee.

The list includes seven companies, whose applications for membership were formally approved by the directors at their Toronto meeting. These are: The Armature Company, Cleveland, O.; Bijur Lubricating

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IRON, STEEL EXPORTS ROSE IN SEPTEMBER

Washington, Oct. 25. — United States iron and steel exports during September totaled 36,038 gross tons, an increase of 3,083 gross tons over August, due partly to larger shipments of sheet products, which accounted for three of the five largest gains during the month, the Department of Commerce announced today.

Exports for the first nine months of the year amounted to 433,306 tons, or 56 per cent. of the 1931 shipments for the same period.

Imports of iron and steel products in September amounted to 29,241 tons, an increase of 5,618 tons over August. Increased imports of scrap, rails and structural shapes featured this trade.

Among exports, scrap was the chief item of the month amounting to 5,995 tons. Tinplate shipments, amounting to 5,100 tons, showed an increase of 2,651 tons. Other gains included 1,959 tons in black steel sheets, and 1,020 tons in galvanized steel sheets. A loss of some signifi-

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Pierce Arrow

OF COURSE, a dealer can't sell as many Pierce-Arrows as he may Fords, Chevrolets, Rocknes or Plymouths . . . but the sale of one Pierce-Arrow carries as much profit as the sale of six or seven small cars. . . And it means only one demonstration, one battle about how much the used car is worth, and finally a permanent customer. ¶ A lot of dealers have found this out and are making extra money. Why not write me about Pierce-Arrow?

Roy W. Faulkner
Vice-President in Charge of Sales

THE PIERCE-ARROW MOTOR CAR COMPANY
Buffalo, N. Y.

Duco Color Service Plans To Supply Color Range

(Continued from Page 1)

ganized colors. Most of these colors cannot be made readily available for inspection because of the tremendous cost of carrying samples. On the other hand, the lacquer manufacturer is expected to retain standards of all colors developed. Furthermore, he is expected to remain in readiness to produce every one of these color variations, no matter how small the quantity ordered or how seldom required.

"In most instances color standards have been carried by lacquer manufacturers for a year or more without a single gallon order having been entered for the color. In view of the disturbing fact that the suppliers' color standards, retained as guides in preparing each batch of color as it is ordered, change color because of chemical reaction, it is exceptionally difficult to correct and keep constant in color a color range of such stupendous magnitude.

"So long as automobile manufacturers are content to accept off-color shipments from suppliers and to adopt these color 'drifts' as new standards, the color situation will become more and more chaotic. The accepted procedure of starting off in production with a certain color, accepting two or three off-color releases as standard and requiring the color supplier to retain samples of each succeeding accepted off-color as a new standard is largely responsible for the current situation. As many as eighty variations of one original color exist, to cite an extreme case. Any one of these eighty slightly off-shade renditions of the original color could creditably and economically represent the entire series of color revision in this particular group. This situation is aggravated still further where motor car manufacturers switch a color around from one supplier to another. This procedure is one of the most productive means of establishing added colors.

"To help overcome some of the many disadvantages arising from the automobile color set up as it stands today, the Duco Color Advisory Service, after a careful investigation of the many existing color systems on record, offers a series of colors called, 'Duco Calibrated Colors.' There are approximately 290 colors in this series and these colors represent an extremely close approximation of every conceivable color or color arrangement required for automotive work. The success of this new system in effectively overcoming the disadvantages of the old is largely dependent upon the manner in which the eighteen representative automobile manufacturers who have studied the application of 'Duco Calibrated Colors' live up to the spirit of their acceptance of this color series and refrain from reverting to their old practice of allowing off-color once again to dominate the situation.

"If pigments of a purity comparable with sunlight were available to the lacquer manufacturer, then a system of automobile colors could be built around a triad of fundamental hues comprised of red, green and purple blue. Until pigment purity attains this perfection, five principal hues, red, yellow, green, blue and purple, are required as a basis for this new system. The intermediate and secondary intermediate colors employed in the 'Duco calibrated color' series are based on these five key hues. Intermediate hues, made from mixtures of the five original color families, are yellow red, green yellow, blue green, purple blue and red purple. The secondary intermediate range of hues completes the circuit of hues

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T. L. HIBBARD WILL DESIGN CARS FOR CADILLAC MOTOR

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Company in Cleveland, back in 1916. The following year he went to Chicago with the C. P. Kimball Company, custom body builders, and later with the Brewster Company of New York. He was one of the founders of the well-known firm of Le Baron. In 1923 he left for Paris.

GRAHAM-PAIGE TO REDUCE CAPITAL

Detroit, Oct. 25.—Stockholders of the Graham-Paige Motors Corporation voted today to reduce authorized capital from $7,000,000 to $5,516,000. The 30,000 shares of first preferred stock $100 par, 40,000 of second preferred $100 par and 2,500,000 of common no par are to be succeeded by 30,000 shares of first preferred, 165 of second preferred and 2,500,000 of $1 par common.

The reduction to $1 par of the no par common stock will result in a transfer to capital surplus, against which will be applied the deficit from operations accumulated to December 31, 1932, and certain write-downs on properties for the current year.

CADILLAC BRANCH TO SELL OLDS AT WHITE PLAINS

New York, Oct. 25.—The White Plains branch of Cadillac Motor Car Company will henceforth handle Oldsmobile sixes and eights in addition to the present line of LaSalle and Cadillac, company officials announce.

Present quarters at Mamaroneck Avenue and Post Road will be devoted to the sale and service of these two units which include Oldsmobile sixes and eights, LaSalle V-8s and Cadillac V8s, 12s and 16s. The combination of these two popular lines was recently made in the Cadillac branch in New Rochelle.

RAY SACKETT HEADS ADVERTISING FOR CONTINENTAL MOTORS

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Ray C. Sackett as advertising manager.

Sackett formerly was publicity director of Advertisers, Inc., and handled publicity for the Chrysler units, Dodge, Chrysler, De Soto and Plymouth.

He has had a long experience in the automobile industry, and at one time was a Studebaker distributor in Grand Rapids and also Studebaker advertising manager in 1918 and 1919.

Sackett joins Continental at a time whent that big corporation is about to make its bid as an automobile manufacturer.

NEW MOTOR VEHICLE CODE IN N. J. AFFECTS HORSE-DRAWN TRUCKS

Jersey City, N. J., Oct. 25.—Under the new motor vehicle law which becomes effective January 1 next horse-drawn vehicles, according to Inspector James Shanley of the motor vehicle department, will have to be equipped with electric signalling devices the same as automobiles and motor trucks.

"The new law is full of complications," said Shanley, speaking before a gathering of truck owners and representatives of the Hudson County Safety Council and Jersey City Traffic Club at the Hotel Plaza, Jersey City.

"Operators of gasoline tank vehicles will especially be in a fix as in New York no signalling devices are permitted on the tanks, and tanks traveling in both states will have to take them off while in New York and put them on again when they come into New Jersey. Trailers will also have to be equipped with the device, and under the law no one will be given license plates if they do not have their vehicles equipped with them."

SPARKS from DETROIT

Chevrolet of Age
* * *
How It Started
* * *
A Stylists Day
* * *
Slogans
* * *
Legible Licenses
* * *

Chris Sinsabaugh—Detroit Editor

CHEVROLET comes of age a week from tomorrow, November 2. Twenty-one years ago the company was incorporated in Michigan, and, believe it or not, Mr. Ripley, the first car was "six cylinders, no more, no less." Since that first one took the road more than 8,000,000 descendants of grandpop, cars and trucks, have been turned out.

* * *

THERE'S A LOT OF ROMANCE interwoven into Chevrolet history. Years ago, when Alfred Reeves had more hair on his head than he has now, the present vice-president of the National Automobile Chamber of Commerce was a race promoter, as well as a corking good New York newspaper man, an automobile editor, as a matter of fact.

Reeves had Barney Oldfield signed for a match, but needed some one to pit him against. Fiat, at that time, was prominent in racing in this country and a friend told Reeves that Louis Chevrolet, foreman of Fiat's shop in New York, knew how to drive a racing car. So Reeves matched the pair and that's how Louis Chevrolet came into the racing picture.

* * *

CHEVROLET WASN'T A FALSE ALARM and he became one of the stars through winning the Cobe Trophy road race at Crown Point, Ind., in 1909 for Buick, the top liner of the team put out by W. C. Durant. When the latter split with General Motors and started all over again as an automobile manufacturer, he had this same Louis Chevrolet design a small, low-priced car which he named in honor of the great race driver. The first Chevrolet came out of an upstairs flat in Detroit, which had been converted into a workshop.

* * *

CHEVROLET DID NOT become Chevrolet as we know it today until it became a part of the General Motors group in 1918. In 1921 it built only 4.5 per cent. of all the passenger cars and trucks produced in the industry, while at present it is claimed one out of every three cars and trucks is a Chevrolet six.

* * *

A STYLIST SEEMS to be a necessity in almost every branch of the industry these days, which explains the appointment of George W. Walker as counsellor of design for Dura Company of Toledo, with his headquarters in the New Center building in this city. It's Howard's job to doll up automobile hardware and put sex appeal into it, which he is well qualified to do.

* * *

HOWARD'S PENCIL already is busy on Dura products, but in between strokes he advances the belief that within the next year or so we are going to have indirect lighting in the rear compartment of automobiles. There's no reason, he says, why those in the tonneau should not have lights on at night. Under the present system, of course, the tonneau is dark because of glare in the driver's eyes, but with indirect lighting this objection may be removed.

* * *

"HOLD ON TO HOOVER" is the Republican campaign slogan that you are hearing and reading these days, but did you know that its originator is none other than Henry T. Ewald, head of the advertising agency which serves General Motors?

Well, it's Henry's idea, but then you might expect him to hatch something of the sort, for his reputation as a sloganeer already is established. He gave us "Keep Cool With Coolidge" and many of his slogans were used in Liberty Loan and other charitable drives in Detroit.

* * *

IT WON'T BE LONG before the new tags will be out and then we will discover if the authorities have taken seriously the results of experiments recently completed. Probably not, but I am told that the experiments developed the fact that only 28 per cent. of the plates are legible at the distance you would expect to read them.

Experts advise that all tags should have a dull finish, with numbers three times as high as they are wide and the space between half as wide as the number is high. Dark letters on a light background are best. Difference in color is not so important in ability to reflect light.

Retail Salesmen—This Is Your Page

This department is devoted to the interests of the retail sales division of the industry. Salesmen, this is your department. Automotive Daily News wants you to get something from this department that will help you in your work on the firing line. It wants you to pass on your own experiences, success, failures to help your brother salesmen. Send in your story in the form of a letter, or even a postal card, and let us get it ready for publication. Your achievement or your mistake may help another salesman to make sales or avoid errors that cost you commissions.

Dealers read this page. Give us the benefit of your reactions on these problems that affect the work of your salesmen, the men on the firing line, the men who bring home the bacon or don't.

SELL THE NEW CAR FIRST

By CHARLES B. BARR

"Sell the new car first" should be a fixed policy in automobile merchandising, according to R. E. Pellerin, head of Uncas Motors, Inc., Pontiac dealership of 321 Main St., Norwich, Conn., who believes that salesmen too often are inclined to settle the trade-in allowance before proceeding with the new car sale.

The Norwich dealer said that he had often seen a salesman walk out of the showroom to meet a prospect he was expecting, and look over the prospect's car at length before saying a word about the new model.

This policy, in Mr. Pellerin's opinion, gives the prospect the upper hand and is reversing the proper procedure. Instead of making the trade-in incidental, it becomes paramount, with the main deal, sale of the new car, secondary.

After all, he pointed out, an automobile dealer is in business to sell cars, not buy them. If the salesman places first emphasis upon the new car and al lits desirable points, shows the customer what a tremendous improvement in transportation convenience he can expect from the new model, then the trade-in becomes merely a detail of the closing.

To employ an old expression, "the shoe is on the wrong foot," the prospect is encouraged to demand the moon and stars for his old car and another profitless sale or none at all impends. There is, of course, no magic method of avoiding trade-in disputes. Even should the politicians' millenium come to pass, it is likely that prospects will continue to expect Cadillac allowances for Model T's.

While the dealer cannot eliminate the trade-in difficulty, he can at least make a start along the right road by putting the usual trade-in argument where it belongs—after the new car has been demonstrated.

The practice of some salesmen in discussing the trade-in first is undoubtedly a result of frequent contacts with the chronic shopper, than which there is no lower species of animal so far as the automobile industry is concerned. The shopper who always has been offered a lot more by "one of the dealers up the street" usually isn't worth bothering with anyway.

If the salesman can fasten in his mind the idea that his job is to sell new cars, not buy used ones, he can put into practice the advice stressed by Mr. Pellerin. The ideal set-up in car selling is one in which the salesman has nothing to do with trade-in appraisals, and by telling the prospect that, is usually able to proceed with his sales presentation.

If the prospect insists that he wants to know what he can get for his old car before even looking at the new models, it is a certain bet that he belongs in the shopper class and probably won't buy anyhow. He may find that the dealers in his town are sane and won't pay him twice what the old boat is worth. In that case he will either continue to drive the old car or trade it in on a "bargain" used car at some fly-by-night independent "lot."

Kings County Buick, Inc., Conducts Interesting Survey

Few surveys recently conducted in the automotive field exceed in point of interest, "A survey of motor car helpfulness," as he calls it, which was undertaken by T. Southworth, president of Kings County Buick, Inc., of Brooklyn.

"For months now," explained Mr. Southworth, "news reports have pointed out that lessened employment and enforced idleness among millions of our people, have been responsible for significant increases in the use of the radio, books and in educational and trade school enrollments.

"We decided this summer to carry out an experimental investigation to determine whether or not the motor car was playing a really stellar role during these uninspiring days. We wondered whether the tendency to double up in living quarters was finding a counterpart in doubling up in the enjoyment of the motor car. We wondered whether the depression brought out in clear high light those inherent qualities of human unselfishness, which we felt were only latent in ourselves and our neighbors, awaiting the crucial testing.

"Our officers, sales representatives, mechanics and repair men were accordingly requested to ask any leading question occurring to them in their public contacts, answers to which might throw some new light on this subject. So extraordinarily interesting were the replies from a human standpoint and so significant in a business sense, that I believe they will serve as inspirations.

"For example, one of our salesmen discovered two spinsters who were packing an old Reo with orphans each Sunday, and taking these tots from a charitable organization to a day at the seashore or open country.

"One old chap who had recently buried his wife was driving the new Buick which she had selected to his brother-in-law's home each Friday evening and taking the large family to a state park on Long Island.

"Our assistant sales manager talked to a chap who had just returned after a year's stay in Soviet Russia, where he was in charge of a hydro-electric development. During his absence, his Buick had been enjoyed each day by his aged mother, to whose care he had intrusted his youngest son.

"A porter and his family were enjoying a car because of the kindness of a certain apartment house superintendent who was confined to a hospital with a fractured knee.

"One of our men, personally checked more than 1,800 cars parked one Sunday in late July at Jones Beach, every car in his count being a model dated prior to 1925. Old cars, whose costs were more than liquidated in enjoyment and transportation values almost a decade ago can continue to give many an inestimable measure of fun, health and pleasure.

"Practically all findings in our survey led to the conviction that people regard the motor more as a source of happiness in these times rather than as a mere vehicle of transportation. Certainly it is significant, when the average family is chiefly concerned with cutting the cost of all luxuries or so-called necessities, that the actual economy of motoring is definitely known; for example, ten gallons of gas, costing approximately $1.50, will permit an average trip of more than a hundred and twenty miles. It is no longer unusual to find two families sharing the expenses of luncheon and gasoline on their Sunday outings."

For the first nine months of 1932, Kings County Buick, Inc., reports the sale of 2,900 new and used cars, as compared with 3,300 new and used cars sold during the same period of 1930.

Dealer Activities

INDIANAPOLIS

Appointment of A. D. Coleman as sales manager is announced by Frank Hare of the Hare Chevrolet Company. Mr. Coleman has been with the Chevrolet organization for the last twelve years, having served as sales manager for New York and Chicago companies, and director of service for the Ormsby Chevrolet Company of San Antonio, Tex.

* * *

The automobile business recently has proved too tame for William C. Miller, head of Miller Motor Sales, Pontiac dealer, who has organized the Pontiac Athletic Club for the promtion of boxing. He still finds plenty of time to direct sales activities of his company, however, and is injecting the fighting spirit into a revamped sales organization.

* * *

A free motor analysis service on the new Wiedenhoff motor analyzer recently installed at United Motors Service brought a capacity of cars and a large number of interested spectators to watch diagnosis of engine trouble. Factory officials attended the demonstration, which was followed by a meeting of service and business men at the company's offices.

* * *

The Citizens Motor Car Company, Packard and Studebaker distributor, also has taken up the more scientific method of motor trouble shooting. A motor X-ray recently was installed and free inspection offered on any make of car. Service attaches of the company claim the devise has been a boon to the repair department.

* * *

Five new half-ton panel trucks have been delivered to the Model Laundry by the A. W. Bowen Company, Chevrolet dealer. The laundry reported the best week in more than two months immediately following expansion of its truck facilities.

* * *

CHICAGO

The Chicago trade welcomed to its ranks this week Lloyd Johnson, who has just assumed his new post as vice-president and general manager of the Auburn-Chicago Company, Auburn and Cord distributors for this territory. Mr. Johnson is no stranger to the Middle West, for he was engaged in the automobile business in Indianapolis and Pittsburgh before being transferred to San Francisco, where he became one of the best known figures in Pacific Coast trade circles. He has been identified with the Auburn distributor organization since 1925.

* * *

Another important personnel announcement is the appointment of G. Curtis Bird as retail sales manager of the Bird-Sykes Company, Graham-Paige distributors. Mr. Bird's promotion comes as the reward for the record he has made during the past five years in the company's retail sales department. He joined the Bird-Sykes Company seven years ago.

* * *

The Royal Sales and Service Company has just been named as Dodge and Plymouth dealer there, with headquarters at 1747-55 Milwaukee Ave. In making the announcement, M. J. Lanahan, general manager of the Dashiell Motor Company, Chicago distributor, states that the newly appointed dealer company, headed by Isadore Kohn, has installed a modern super-service station. Mr. Kohn has been engaged in the automobile business along Milwaukee Avenue "row" for eleven years.

* * *

Chicago distributors and dealers plan to send a liberal representation to the annual convention of the Illinois Automotive Trade Association. This event, it is announced by C. W. Coons, secretary-manager of the state association, will be held at the St. Nicholas Hotel, Springfield, during the first or second week of December.

* * *

PHILADELPHIA

W. J. Culverhouse, general manager of Reo Sales and Service of Philadelphia, which has just been appointed metropolitan dealer for Reo, for a long time has been associated with the merchandising of this car, having come to Philadelphia from the Detroit factory branch to open the Philadelphia wholesale branch. He expresses himself as very optimistic over the demand for the product he represents. Reo Sales and Service, by the way, retains the personnel of the old Reo Philadelphia Company, and Phil Mathews is service manager.

* * *

NEW JERSEY

George Plimley has joined the staff of Mehrhof Motors, Chrysler and Plymouth dealers of Bloomfield, as sales manager. Mr. Plimley was formerly with Hudson County Buick Company.

* * *

John L. Brock and Counselor Hervey S. Moore of the Trenton Automobile Dealers Association left today to attend a meeting of the Camden Automobile Trade Association at Medford Lakes. In addition to a business session, the automobile men have arranged a golf tournament.

* * *

Prizes have been awarded to five winners out of thirty-nine contestants in the Plymouth sales contest conducted by Mehrhof Motors, Chrysler dealers in Bloomfield.

* * *

CONNECTICUT

Julian Motors, Inc., has been formed in Waterbury to take over the Ford franchise held for the past year by Malcom Motors, Inc., and show rooms have been established at 37 Cottage Place, moving from 481 Meadow St. The new concern has as its officers Julian Malcom, president, and Eugene L. Seville, secretary and treasurer, who held the same position with Malcom Motors. The latter corporation has been dissolved.

* * *

The General Motors Truck Company has opened a new retail branch at 615-619 State St., New Haven, with C. W. Squires, Jr., as manager. A complete parts and repair service will be maintained.

* * *

The building occupied by Uncas Motors, Inc., Pontiac dealership of 321 Main St., Norwich, is being altered to provide a new balcony office in the rear with a parts salesroom underneath.

* * *

SAN ANTONIO, TEX.

Reception of the new Hupmobiles is creating quite a little interest in the auto circles, these being the first new models that have been announced along auto row in some time. Dale Dietrich, general manager of the San Antonio Motor Company, Hupp distributor, reports a fine public reception.

Used Car Selling Prices

Automotive Daily News in this department offers for the benefit of its dealer and salesmen readers a compilation of prices at which used cars have within the past few days been offered for sale by reputable dealers in various cities. These prices will vary on condition and from other causes. They are not presented as being the exact prices at which these models should be sold, but simply as the prices at which they have been offered for sale by dealers in the various cities. Other cities will appear in subsequent issues of this paper.

San Francisco, Cal.

	1931	1930	1929	1928
Auburn	685-745	....	395r	....
Buick (Light)	....	515	385	195cp
Buick (Medium)	650-680td	495cp-595cp	395cp	....
Buick (Big)	....	675cp	445	325cp
Cadillac 8	1650	1275	876-975	....
Cadillac 16	....	2485	....	....
Chevrolet	375cp-445	295c-325cp	165-245c	125cp
Chrysler 6	600-695	345r-595	395ccp	345cp
Chrysler 8	652-1000d	....	....	....
Chrysler Imperial	1650	900	....	....
De Soto 6	375cp-542	295c-345	295r	....
De Soto 8	495cp-545	335-445	....	....
Dodge 6	....	365cp-375	195cp-345	185-250
Dodge 8	....	450	....	....
Essex	....	285-345cp	275c	145
Ford	325c-425	245cp-295r	150cp-185r	....
Graham 6	....	....	295-375	....
Hudson	695	465-495	345cp-365	....
Hupmobile 6	....	495cp-542	....	....
Hupmobile 8	654	....	445	....
La Salle	....	....	....	482
Lincoln	....	....	985	....
Marmon	....	....	225	245cp
Nash 6	545	....	225-285	....
Nash 8	....	495-535cp	....	....
Nash Advance	....	....	395	....
Oakland 6	....	362cp	345	....
Oakland 8	....	335cp-385cp	....	....
Oldsmobile	....	395-495cp	295-345	....
Packard	1650-2250	845-1250	850-1275	725
Pierce	....	....	1182	....
Plymouth	295r-345	....	....	....
Pontiac	....	321	295cp	225
Reo	....	....	395b-432	....
Studebaker 6	650	....	....	....
Studebaker Dictator	763d	475cp-542	....	235cp
Studebaker Commander	735b-935b	542-653	518cp	295
Studebaker President	1242	731	482r	521
Stutz	....	....	....	225
Willys 6	....	....	....	125
Willys 8	....	495r	....	....
Willys-Knight	....	....	345cp	285

d-De Luxe. c-Coach. cp-Coupe. ccp-Convertible coupe. b-Brougham. t-Touring. r-Roadster. Where no distinguishing mark follows the price the car offered is a sedan.

Automotive Daily News

"Of, By and For the Entire Automotive Industry"

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Putting Your Best Foot Forward

PSYCHOLOGISTS generally agree that America is "eye-minded." By that they mean that our people receive a deeper impression from things they see than from sounds they hear or even from viands or beverages they taste, though visiting foreigners would probably question this last.

It is an undoubted fact, at any rate, that it is vitally important to impress any prospective customer through the eyes. Advertising, of course, is designed for this definite purpose. But reaching the customer through his eyes has more than the advertising angle. The layout and "dressing" of a shop or store attract or repel a customer, as the case may be, through his eyes. Goods may sell well or badly, according to the manner in which they are displayed.

A recent test to prove this was conducted among a chain of grocery stores numbering 112. Eight nationally known products were selected for the test. Each store manager kept a careful and accurate record of sales on each of these products for a week, during which the goods were kept in their usual place on the shelves.

The next week each grocer gave a special display to four of the products and again kept careful records of sales. He put no effort behind the sales except the special display of the goods.

The result was certainly enlightening. One displayed product increased its sales 72 per cent. The lowest increase was 32 per cent., and the average for all eight of the specially displayed offerings was 43 per cent.

It makes no difference what may be the business, comparable display will bring results in increased sales. Obviously, the percentages will differ, but any real effort to increase the sale of any given product by an appeal through the prospective customers' eyes will bring results.

In our own business we can find many avenues for this reaching out with eye appeal. One place that comes instantly to mind is the used car department. It may be regrettable, but the average man pays more attention to the look of the used car he is buying than he does to its mechanical condition. Dealers should realize that part of the money they spend in reconditioning trade-ins must be spent on improving the appearance.

Again, the method of displaying the used car offered for sale will have a large part in determining the prices that will be obtained and the quickness with which sales will be made. A used car department that is slovenly, ill-lighted and generally unappealing will drive customers away instead of attracting them. With the used car as the greatest adverse factor in the automobile dealership situation, every dealer should make the utmost effort to achieve as much eye appeal in this department as possible.

Another department of the dealer's business where eye appeal is not often, indeed, we might say, seldom considered is the service division. It is obviously difficult to give a service department the superficial attractiveness that can be achieved in the new car salesroom. Grease and oil are difficult to make beautiful, but it is possible none the less to have such an orderly and well-conducted shop that the impression made on a customer is pleasant instead of being repellant. We are tempted to say that even a slight attempt to achieve this end will be successful, because the customer will use as his yardstick a comparison with the average somewhat dirty and disorderly service station.

Make no mistake, your shop may be magnificently efficient, your mechanics may be the best that money can hire, your prices may be surprisingly low for the high-class service that you supply, but still, if your shop is dingy, dark and dirty, you are losing some customers that would be your regular patrons if the service department had eye appeal.

In this era of hardly wrung business it behooves the dealer to use every means to get and keep all classes of business. New cars, used cars, service and maintenance and eye appeal is one of the methods of getting and keeping customers.

A. A. NIELSEN HEADS CONNECTICUT A. D. A.

Hartford, Conn., Oct. 25.—Arthur A. Nielsen of John P. Nielsen and Sons Company, Chrysler dealership, 122 Washington St., this city, was re-elected president of the Connecticut Automotive Dealers Association at the annual meeting October 19 in Saengerbund Hall.

D. A. Baldwin of Middletown was re-elected vice-president and Arthur Fifoot, Hartford, executive secretary and treasurer. New members of the executive board include Roscoe Banjamin, Winstead; Roland Jordan, Willimantic; E. A. Jackson, Portland; John Daily, Jr., Rockville; C. H. Cheeney, Meriden and Charles R. Sortor, New London.

Members who retain their places on the board are Herbert Lake, Danbury; Fred L. Loeser, New Haven; D. A. Baldwin, Middletown; George A. Sherwood, Bridgeport; H. A. Thompson, Derby; J. J. Cooley, New Haven; H. W. Smith, Hartford; Julian L. Williams, Norwich, and Frederick G. Loehmann, Waterbury.

Dealer members were present from sixty-one towns in the state. A dinner was held prior to the business session. President Nielsen outlined the association's program for this year's legislative work, and stressed the importance of automobile tax cuts for the protection of the motoring public and the dealers.

Mr. Nielsen thanked the members for their support and lauded work performed by the association's new business manager, Carl R. Lane, who has more than doubled the membership.

Russell P. Taber, Connecticut director for the national association, described the work of the national body. Other speakers were Attorney Kendall M. Pierce, association counsel; A. C. Hine and Lucius H. Elmer, Hartford, and Fred L. Loeser and J. J. Cooley, New Haven.

RICHFIELD STATIONS, INC., INSURES EMPLOYEES

Newark, N. J., Oct. 25.—Fifty-three employees of the Richfield Stations, Inc., automobile service stations, with headquarters at 555 South Flower St., Los Angeles, Cal., have been covered with life insurance through the adoption of a group policy totaling $57,500 by that organization.

The Prudential Insurance Company of America issued the policy which grants protection to workers in amounts ranging from $1,000 to $2,000, according to amount of salary received and this insurance is given to the workers without cost to them, the policy being of the non-contributory type.

RECEIVER APPOINTED FOR RELAY MOTORS

Canton, O., Oct. 25.—Grand Gilliam of Lima has been named receiver for the Relay Motors Corporation of Lima.

The Hercules Motors Corporation of Canton asked the receivership, alleging the defendant firm owes it $11,546.35. Liabilities were listed at $230,000 and assets at $150.

COMING EVENTS

NOVEMBER

11-19—**Glasgow, Scotland.** Motor Show.
14-16—**Atlanta, Ga.** National Tire Dealers' Association.
15-17—**Houston, Tex.** American Petroleum Institute Meeting.

DECEMBER

2- 3—**Detroit.** National Standard Parts Association Convention.
5—**New Orleans, La.** Association of Asphalt Paving Technicologists.
5- 9—**New York.** Annual Meeting A. S. M. E.
5-10—**New York.** Power and Mechanical Engineering Exposition.
5-10—**Detroit.** Motor and Equipment Manufacturers Association, convention, Hotel Statler.
5-10—**Detroit.** Third Annual Joint Trade Show, National Standard Parts Association and Motor and Equipment Manufacturers' Association, Convention Hall.

JANUARY

7-14—**New York City.** National Automobile Show, Grand Central Palace.
7-15—**Los Angeles, Cal.** Los Angeles Motor Car Dealers' Association, twentieth annual show.
16-23—**Detroit.** Highway and Building Congress.
28-Feb. 4—**Chicago.** National Automobile Show, Coliseum.

FEBRUARY

11-18—**Kansas City, Mo.** Kansas City Motor Car Dealers' Show.
27-Mar. 14—**New York City.** Chemical Exposition, Grand Central Palace.

APRIL

20-21—**Cleveland, O.** National Petroleum Association.

In This Corner . . . .

Opinions, suggestions, complaints, criticisms, grievances or what have you. Open to every one to say anything, anyhow, any time. The communications printed in this department represent the ideas and opinions of our readers. They are not necessarily ours. If you have something to say on any phase of automotive activity, wholesale, retail or abusive, let us hear from you and we will tell the world.

Whose Problem Is the Used Car Problem?

Automotive Daily News: After twenty-three years spent almost entirely in the automobile industry, it seems to this writer that at least a half dozen times a year for the past fifteen or sixteen years, he has read in various trade journals just such articles, such rantings as writers, with a pronounced sympathy for the manufacturers, have recently put forth. It would be to laugh if these losses were not so enormous and if they were not the cause of such a heavy toll in the mortality rate of retail automobile merchants.

It has been said that for any business to endure, to be permanently successful, that business must be fair to its customers; fair to its employees; fair to itself. This writer had almost accepted that as axiomatic, but the used car problem of the retail automobile dealers, proves that it is not always true.

Let us consider the automobile manufacturer. He has been fair to his customers—the automobile purchaser, the user of his product. He has been fair to himself—he has prospered. But has he been fair to his dealers, who are, broadly speaking, his employees?

It is admitted that the manufacturer has, from year to year, given the purchasers of his new cars—his customers—an improved, a better automobile, a greater value. He has also enlarged his plant, extended his sales organization, increased his production. He has prospered. That is fair to his customer, fair to himself. But what about the retail automobile dealer—his employee? Has he prospered? He has not. Year after year he has consistently lost money on the used cars that he has been and is forced, absolutely and irrevocably forced, to buy, to trade in, in making sales of the manufacturers new cars. No, he hasn't been fair to this employee.

Since 1916, each year has seen the dealer absorbing increasingly greater losses on used cars, with the possible exception of two or three boom years. And each year has seen the manufacturer, or some spokesman for him, whose own interests were so linked to those of the manufacturer that his sympathies were with him also, endeavoring to write a brief for the manufacturer on this used car situation.

In the final analysis, the manufacturer or his spokesman said about the same thing, year after year. What they said was always the same: "You must organize yourselves in your community and work out a plan whereby you can control the prices which you will pay for used cars offered you in trade on new cars." And then, when pressed, they would blandly admit that if and when such co-operative action could be established by the dealers among themselves, such action would be in violation of the Sherman Anti-Trust Act. And there they would leave it.

Never a constructive thought or practical suggestion as to how the dealers might achieve such control of the price they are forced to pay for a used automobile they prefer not to buy, but are forced to, without running afoul of Uncle Sam and the Federal Trade Commisison.

All of these writers emphasize co-operation, but none of them offer any suggestion as to how that co-operation among the retail dealers can be achieved in a way that is practical and workable.

The retail automobile dealers have tried for years to organize. This plan, that plan—scores of them have been tried. For one reason or another all of these plans looking towards co-operative action among the dealers, have successively failed. This writer once organized a used car clearing house for retail new car dealers in a city of 50,000 inhabitants. It worked beautifully and profitably—for five months. Other plans, established on equally sound merchandising principles and with every promise of success—have failed flatly and quickly. The reason for these failures—the one thing and only one thing lacking, was the one element the manufacturers say must be supplied (and in that they are right) i. e.—sustained co-operative action among the retail dealers. But how?

Has any one ever seen a championship football club without a coach, without a quarterback, a field general?

Has any army of 20,000 soldiers ever been successful, victorious, without a general staff always planning? A general always directing and leading? No, and you will never see the automobile dealers of this country working co-operatively until some agency, some general staff and general, if you please, takes charge and builds that co-operative spirit.

What agency in the automobile industry is equipped with the experience, the personnel and the all-powerful motive as that of the manufacturer? None.

The manufacturers can secure the co-operation of their respective dealers with their competitive dealers in his community, and none but the manufacturer can secure it and hold it permanently. The manufacturer is the only effective agency in the industry that can secure that co-operation among retail dealers.

There are now fifty-four manufacturers of cars and trucks. There are tens of thousands of dealers. Which offers the simpler problem, to organize fifty-four manufacturers into a sort of general staff or to organize upward of 20,000 dealers?

Here, very briefly, is my thought for the solution of this problem. It is based on what the manufacturers and automotive observers are agreed is the one imperative, absolutely necessary element in the solution of the problem—sustained co-operative action among dealers in the purchasing of used cars offered them in trade on new cars.

This plan presupposes an intelligent, sympathetic understanding by the manufacture of the heart-breaking, demoralizing and morale anihilating influence of used car losses by their dealers and the losing battle the dealers have fought against the evil for years. A battle that has been fought single-handed by the dealers, with little or no help from the manufacturers. Then—

1.—Discontinue junking allowances or other similar devices.

2.—Adopt uniform discounts in the several price fields.

3.—Give the dealers a closed territory contract. Familiarity with many of the arguments advanced by the manufacturers opposing this, prompts me to say here, if space permitted, I could overcome them with good, logical, convincing statements of facts.

4. Initiate a national educational campaign on used car prices. Let the manufacturers advertise the price a dealer should pay for used cars of a given make, type and model, in average condition, in any given zone. Blue Book prices could be used as a basis. At least, that is a thought for a start.

5. Closer contact and co-operation of the manufacturer with his dealer in all of his merchandizing under this new set-up.

6. Take whatever steps that would appear appropriate and effective to the end that the Sherman Anti Trust Act be abrogated or amended. This is a piece of legislation that is, in this writer's opinion, obsolete under modern conditions.

This writer believes that if Ford, General Motors, Chrysler, Hudson-Essex and Studebaker would "come to a meeting of minds" on such a plan and give it their support 100

(Continued on Page 12)

Production--Engineering--Factory

Colloidal-Graphited Oil as Running-In Medium

In a recent technical bulletin the Acheson Oildag Company comments on the problems present in running-in operations on machinery of all sorts. This company manufactures colloidal-graphited oil, a product particularly recommended for running-in service.

The bulletin quotes at length Dr. E. Falz of the Imperial Institute of Economics in Germany, who has some interesting things to say about the use of graphite in running-in operations. In his Grundzuge der Schmiertechnik Dr. Falz says that running-in consists of a simultaneous reduction of the irregularities all around the shaft and those in the bushing at the contact region with the shaft. This continues until the sum of the projections (at the salient points) has decreased to the size of the requisite minimum lubricating film. This process, however, will occur only very rarely in the manner described.

In the great majority of cases the bearing metal is considerably softer than the material constituting the shaft and hence a smoothening action will occur only on the surface of the bushing. Whereas the polishing in cast iron and bronze is due to grinding off of the "high spots" the projections in a white metal bearing are reduced mainly by crushing. Accordingly, the running-in of hard bushings takes much more time than that of white metal bearings and requires greater attention and care.

Since there is no question of polishing the shaft in running-in a white metal bearing and since the white metal surface should become as smooth as possible, it is naturally necessary that the shaft be of the best workmanship. A shaft which is rough cannot polish a bushing well.

In connection with the importance of collodial graphite as a running-in lubricant, Falz states "The smoothing action of the surfaces obtained through running-in, which contributes so greatly to the increase of the load capacity, can, however, be obtained artifically, too without any grinding or crushing procedure. A modern process of this type, unfortunately too little known as yet, consists of breaking-in the smoothly finished surface with colloidal graphite.

"Collodial graphite, mixed in a certain proportion with oil is drawn into the microscopic pores of the shaft and bearing metal, and under the influence of the presure and rotation gives both members a high degree of polish never to be obtained merely by the ordinary means of practice. After a certain extended period of operation all surfaces receive a dark, durable, glistening coat of graphite, which is not removable even by washing, because collodial graphite (but not ordinary powdered graphite) enters into a very firm combination with a metallic surface.

"The advantages of this procedure are felt in various ways: Slowly rotating or merely oscillating pins with a high surface presure, where fluid friction is not attainable, yula a much lower friction when collodial graphite is added to the oil than when it is absent. This is because the direct friction of steel upon graphite is decidedly less than friction between steel and bronze, or any other bearing metal.

"Another invaluable advantage of graphite lubrication from the operating standpoint is its peculiarity of maintaining operation for a long time after the oil supply has been cut off and without allowing overheating or wear in the bearing. This fact, which has been confirmed by exhaustive experiments, is explained by the circumstance that the coefficient of the friction of steel on collodial graphite is not much greater than that of fluid friction, and a roughening of the graphite-coated surface on a smooth shaft is not to be feared even when the pressure is very high.

"In any case, even in pure fluid friction, the shaft and bushing receive an unsurpassable polish through breaking-in with colloidal graphite; the height of the remaining irregularities is diminished to the utmost possible degree, and consequently lubricating films of much slighter thickness becomes admissible. The result is that a bearing broken in with colloidal graphite and which is otherwise well constructed, will support much greater loads than originally, even after going back to pure oil lubrication.

"This point is of exceptional interest. In running-in the irregularities are reduced by diminishing the projections, and in the case of graphite by filling up the indentations. The result is basically the same ,except that far smoother surfaces are to be obtained by the use of graphite.

"The irregularities remaining on well-finished surfaces after treatment with graphite are extraordinarily slight. Their depth may be estimated at about 0.001 mm. so that minimum lubricating films down to 0.002 mm. become admissible."

ELECTRODE HOLDER

A new type electrode holder has been developed by the General Electric Company for atomic-hydrogen arc-welding with flexible tungsten electrodes. These flexible electrodes are carried in curved tubes, forming a part of the holder, and are brought into position through the means of a screw feed ejector. The new electrode holder is said to make it easy for the operator to work in confined places, and the flexible electrodes should materially lower the operating cost by reducing breakage.

The flexible tungsten electrode is made up of several small diameter tungsten wires which have been stranded together, and, as a result, the electrode is so flexible that the ends of a 12-inch length can be brought together without giving the electrode a definite set. The consumption of this electrode is the same as that of the rod type electrode

When using the rod type holder, the operator has a tendency to discard the electrode after it has been consumed to a length of three or four inches because of the difficulty of adjusting the shorter lengths. In the new holder, the electrode is easily adjusted, by means of the screw feed ejector, and can be consumed to a length of approximately one and one-half inches, at which point, the electrode will drop out of the nozzle tip. Before this occurs, a new electrode has been mechanically inserted into the ejector and a few turns of the screw feed places the electrode in welding position.

On holders of the rod type, the hydrogen tubes are moulded into the handle and, therefore, whenever these tubes have to be repaired or replaced, it is generally necessary to return the holder to the factory. The tubes of the new holder are easily detached from the handle and the purchaser can make any necessary replacements at his own plant. Likewise, all other wearing parts have been arranged for quick and easy replacement.

Another feature of the new electrode holder is its adjustment for controlling the position of the fan-shaped welding flame. The flame may be controlled to be either parallel to or at right angles with the axis of the handle by a slight turn of a thumb screw.

SNOW REMOVAL BOOKLET

The Caterpillar Tractor Company of Peoria, Ill., has just published a new pamphlet on "Snow-Removal Methods and Equipment." This brochure gives many pictures of snow-removing equipment, plows of several types, ice levelers, as well as tractors used in this branch of road clearing.

ANTIKNOCK FUEL AS FACTOR IN ECONOMY

Antiknock gasoline used in high compression truck engines save three mills a mile in fuel cost and reduce the number of valve grindings and bearing adjustments from seven to an average of one and one-half a year, it was shown by trucking tests reported to the Ethyl Gasoline Corporation. The experiment disclosing these economies lasted one year and was carried out with bus and truck fleets operating in southern California.

Increasing the compression of truck engines operating in severe service eliminated boiling of the cooling water and permitted the trucks to operate at an average of one gear higher. Operating time for a 1,000 mile round trip was reduced six hours, and the work was found to be much easier on the drivers. Fuel consumption for the trip was reduced about sixty-five gallons.

Compression ratios in truck engines are now being increased by machining cylinder heads and by making other necessary adjustments for antiknock fuel at an average cost of five dollars per engine, the report states. Truck manufacturers, the Ethyl Corporation predicts, will produce high compression engines to meet the demand for such equipment.

Expenditures on the five-dollars-an-engine scale would enable truck and bus operators to realize between fifteen and twenty per cent. power increase for each vehicle, it is estimated. This enhancement of power might be utilized to shorten the running time of a truck or bus or to pull a larger load. In the case of the bus, it would probably be desirable to reduce the running time by lessening the number of necessary gear shifts and stepping up the rate of acceleration.

The operation of any truck, bus or tractor engine that has fuel or carbon knocks when ordinary gasolines are used can be improved, it is stated, by the use of antiknock fuel.

HYDRAULIC ACTION PISTON RINGS

Wilkening Manufacturing Company announces an entirely new principle of piston ring design—the principle of hydraulic action. This is known as the Pedrick sectional hydraulic piston ring. It is made in both compression and oil-control types.

Pedrick sectional hydraulic piston ring—(1) compression type, (2) oil-control type—have two cast iron sections whose combined width is substantially less than the width of the piston groove.

BRONZE WELDING ROD BOOKLET

The Linde Air Products Company, New York, has just published a twenty-page booklet on Oxweld No. 25 M, bronze patented welding rod.

In this booklet are described the physical and welding characteristics of this new bronze welding rod, with which it is possible to obtain tensile strength in joining steel of between 56,000 and 60,000 pounds per square inch and ductility in excess of 30 per cent. Marked decrease in fuming and excellent weldability are other outstanding characteristics. Many important applications are described in joining metals and building up wearing surfaces.

Of special note are recommendations on a new technique for bronze welding and for the fusion welding of brasses and bronzes; in particular, the proper flame adjustments are described for the various base metals.

ILLINOIS BUS OPERATORS TO FIGHT TAX INCREASE

Chicago, Oct. 25.—Attempts at the next session of the state Legislature to increase taxes on motor buses will be strenuously opposed by the Illinois Bus Association, stated Chester G. Moore, president, following a meeting of the organization at the Stevens Hotel.

MACHINE SHOP COMMITTEE MAKES HELPFUL SUGGESTIONS

L. F. Hunderup, chairman of the machine shop committee, National Standard Parts Association, recently issued the following bulletin:

"It is recommended that the N. S. P. A. adopt the headings for expense classifications in machine shop expenses, as recently submitted by the committee; that the membership be bulletined, requesting their expenses be recorded under these headings so that next year it will be possible to send out a questionnaire and get definite replies under definite headings from a majority of the members.

"If such information were obtainable, we could submit to the membership average figures which they could compare with their own figures, and thus determine those items on which they are high or low, and this would enable them to adjust their method of doing business to meet average conditions where possible.

"It is recommended that jobbers having machine shops definitely determine the cost of performing various shop operations before meeting competitive prices. Some prices which are quoted today are absolutely ruinous if the jobber expects his machine shop to operate on a profitable basis.

"It is the opinion of this committee that many prices have been cut down far below a profitable basis, especially if the jobber is not equipped with the latest time-saving equipment.

"It is recommended that machine shop operating jobbers pay more attention to ways and means of advertising their services and their shops. Every forward-looking jobber owning a machine shop is anxious to advertise his shop in such a manner as to get maximum benefits from his advertising.

"Practically every jobber publishes a price list. Many of these price lists are incomplete, lack detail and are of very little value to the garagemen. We are making the following suggestion as a method of definitely increasing your machine shop business:

"When you send out a salesman, you give him the complete details on prices, quantities, materials and everything necessary for him to quote prices. You bring him in to sales conferences so that he can get complete details on how to sell your merchandise.

"Your sales force, as far as your

(Continued on Page 12)

S. E. A. PLANNING 20 MAINTENANCE CLINICS IN AS MANY CENTERS

(Continued from Page 1)

confidence, the neglect of millions of motor cars through the depression and the lower prices of equipment and numerous other commodities in relation to advanced engineering and quality. The example of past successful clinics is cited and it is shown that the group clinics, as proposed, will be staged at a time when the repair shop trade is most receptive and interested in the merchandise demonstrated.

The aid of those addressed is requested in making the forthcoming campaign a success, and a detailed description is given of what the show managers and S. E. A. members, jobbers and jobbers' salesmen will be expected to do toward this end. The proposed striking direct mail advertising campaign to be used in connection with each clinic is briefly touched upon, as well as are other featurese. The direct mail will consist, in very case, of two cards and two large broadsides in three colors, mailed directly to the service stations and repair shops by an organization operating a national list of retail outlets. The inclosed broadside, appropriately illustrated, addresses itself to the interest of service managers, repairmen and mechanics, as well as to dealers and fleet owners, super-service station and oil station operators.

Costs of participation are covered in the circular, and it is stated that detailed instructions to jobber group chairmen, manufacturers' representative group chairmen and clinic managers will be issued and a proved operating cost budget supplied.

The twenty cities selected for S. E. A. group clinics in 1933 are: New York, Detroit, Cleveland, Philadelphio, Newark, N. J.; Kansas City, Baltimore, Chicago, Minneapolis, St. Louis, Los Angeles, San Francisco, Portland, Ore.; Pittsburgh, Buffalo, Boston, Milwaukee, Denver, Montreal and Toronto. It is hoped to co-operate with any clinics in other cities.

New Weaver Wheel Holder

THE NEW Weaver wheel holder brings a convenient means of supporting demountable wheels, including drop center rim types and wire and disk wheels with lock rings for changing tires. It supplements Weaver Model E tire changers and rim strippers. Hooks, operated by foot pedal, grip wheel hub from inside or outside. Wheel is supported at proper working height and in horizontal position, eliminating danger of pinching tube when mounting tire. Convenient tray for tools. Supplied with or without base

Duco Color Service Plans To Supply Color Range

(Continued from page 2)

by representing, together with the two hue classifications already referred to, every color family at its fullest hue strength. Red yellow red, yellow red yellow, yellow green yellow, green yellow green, green blue green, blue green blue, blue purple blue, purple blue purple, purple red purple and red purple red are the secondary intermediate colors and complete the hue circuit, and all of these variations are adequately represented in the 'Duco calibrated color" series, with exceptions noted in the following:

"Owing to the fact that certain durability limitations must be observed in order to present satisfactorily colors of sufficient stability for outdoor exposure requirements, four of the twenty hues, comprising a portion of the color circuit, purple, purple red purle, red purple, and red purple red have been withdrawn from consideration.

"Each durable color family or hue retained in this new color system has been subdivided into color dimensions called value and chroma. Until January, 1932, little was known about chroma in automotive art and color departments. Hue (the quality by which red is distinguished from green, purple from yellow, etc.) and value (the lightness or darkness of a given color) constituted the only known dimensions with which color was described in the automotive industry.

Light values are sometimes called tints and dark values are known as shade. In this new series of calibrated colors, the lowest or darkest value is black and is represented by a notation of triple zero, 000. White, the lightest or highest value, is represented by 9. Between these two extremes of value there have been developed ten visually calibrated neutral sequences from dark to light, designated in this order by the following symbols: 00, 0, 1, 2, 3, 4, 5, 6, 7 and 8. These twelve neutrals are one dimensional—that is, they lack hue and chroma characteristics.

"By actual count, 413 so-called grey colors have been formulated to meet automotive production 'needs.' It is proposed that this entire cumbersome series be replaced by ten neutrals ranging between black and white. Blue greys, green greys, warm greys, and the like are merely extremely weak chroma variations of the blue, green and red color families.

"In much the same manner as the size of a room can be described in three dimensions—length, width and height—so, too, can color be adequately portrayed by a use of the three recognized fundamental color dimensions: hue, value and chroma. Chroma expresses concisely the third dimension of color. Chroma is the degree of departure of a color sensation from neutral. An olive green is a green of exceedingly weak chroma. An emerald green is described as possessing strong or powerful chroma.

"By the general adoption of these color terms in the automotive industry, it will prove possible to describe and convey impressions of colors most accurately. In place of attempting to describe Powhatan Buff by saying it is sort of a deep, dusty, muddy, yellowish kind of brown, we can call its appearance vividly to the mind of one familiar with these color dimensions by saying it is a yellow red yellow at three steps of value and one step of chroma. This means it is a yellowish brown of low middle value, lacking brilliance or purity. The color we call brown does not appear in the spectrum. Brown is, however, a low value of yellow red or yellow red yellow. If it is a yellowish hue of brown, then it belongs to the yellow red yellow hue.

"Because of the tendency, in the past, to permit color development to proceed along lines of least resistance, the range of colors carried as standard by various representative color suppliers lacks completeness, orderly arrangement by color group, and the appeal that a complete range of strong chroma representations would add to any color line. The new range of 290 colors embodies all of these advantages those whose work is to select effective production color schemes.

"A special survey of color gallonage statistics recently completed by the Automobile Color Index, issued monthly by the E. I. du Pont de Nemours & Co., Inc., with the co-operation of automobile manufacturers, reveals the interesting disclosure that not more than two hundred color variations have been employed in production in any one month. When we consider that the peak production months of April and May of 1928 and 1929 are included in this picture, the amount of surplus in 11,500 colors can be readily imagined.

"There is a column containing a list of colors called 'leaders' which appears each month in the Automobile Color Index. This column lists colors of such great consumer acceptance that they are considered fashion colors. A survey of the colors that have appeared consistently as 'leaders over the four and a half year period during which the Automobile Color Index has been operative has just been completed. This research has disclosed that a range of a few distinctive colors of representative hues have remained consistently in favor during this entire time.

"It would not be practical to arbitrarily select 290 of the most popular colors from the extensive existing color range because such a selection would by no means be as representative of all color variations as a calibrated color range especially prepared to provide a complete outline of distinguishable colors in the most desired variations of every durable hue.

"When colors are systematically prepared to represent every full strength color group in its entirety of variation it is a relatively simple procedure, in the event a green of yellowish hue is required, to select from the yellow green yellow or green yellow color families the exact color desired. If it is a dark color, it will be found among the low values; if a bright color is needed, a sufficiently bright chroma will be available to suffice. The measured steps of value and chroma are sufficiently far apart to provide adequate contrast one with another.

"In this way, a car body finished in two steps of chroma will contrast effectively with fenders and molding in the same hue and value at three steps of chroma. With 'Duco Calibrated Colors' it is possible to secure as many as six good color schemes from four colors of a single hue. This has very seldom been possible with unorganized unrelated color. With four blue purple

(Continued on Page 12)

IRON, STEEL EXPORTS ROSE IN SEPTEMBER

(Continued from Page 1)

cance was that in skelp, 1,989 tons.

Canada was the chief purchaser, buying 7,763 tons. Japan was second with 7,515 tons. Canadian purchases were confined principally to black steel sheets and scrap, while Japan concentrated its attention upon scrap and wire rods.

B-K Vacuum POWER B

• Vacuum is the simplest, most exactly controllable, most reliable, and most economical form of power for brakes on motor cars. • B-K Vacuum Power Brakes are thus ideally suited to the modern trend in motor car design—lighter, faster cars which can be safely controlled *only by power brakes.* • No unit could have had more stringent test, no unit could have built up more compelling proof of its entire fitness for this task of *controlling high speed* than has the B-K Vacuum Power Brake. As standard equipment for many year truck, trailer, and motor Brakes have protected made all our highways cient Bendix Product is that Bendix anticipates safe motoring. When P Bendix is ready. • At th overwhelming ity cars which with B-K Vac

BK VACUUM POWER BRAKES A BENDIX PRODUCT

96% OF ALL POWER BRAKE

BENDIX P

AUTOMOTIVE STEEL BUYING IMPROVES

(Continued from Page 1)

proximately one-eighth of Republic's open hearth in the district are melting.

Mahoning Valley mills of Carnegie Steel Company, heavy producers of automobile shapes under normal conditions, are operating under schedules in effect recently. Five or six of fifteen open hearth furnaces are melting as for several weeks, valley trade authorities reports. Shenango Valley plants of Carnegie are working at a slightly reduced rate, half the open hearth being engaged half the week.

Resumption of operations at Republic Steel's Warren sheet plant and at Mahoning Valley Steel Company's Niles sheet plant are encouraging developments in the flat rolled steel trade. Strip production in the Sharon Steel Hoop Company plant at Sharen is higher, suggesting that the company's 18 per cent. rate of ingot production may be increased shortly.

KELLY-SPRINGFIELD CO. LOSES PATENT SUIT

(Continued from Page 1)

Cushion patent to the Goodyear company.

The Kelly-Springfield Company's license agreement provided for the payment of $100,000 in cash and a percentage royalty to the patent owner in return for a license to make, use and sell the pressed-on type of tire vulcanized to a metal base, and for a pledge that no one should be licensed other than the petitioner and the Overman Cushion Tire Company except under conditions set forth in a supplemental agreement.

LOUIS FERRAR HEADS AUTO SPRING WORKS, INC.

Springfield, Mass., Oct. 25.—Louis Ferrar, president, has announced the incorporation of the automobile spring works, founded by his father, Frank Ferrar, under the name of the Ferrar Auto Spring Works, Inc. Other officers in the new corporation are: Fred Ferrar, treasurer; Frank Ferrar, general manager, and Miss Lillian Cotti, clerk. The business is located at 738 and 740 Worthington Street, Springfield, one of the largest spring service stations in New England.

1932 Passenger Car Sales Seen as 1,100,000 Units

(Continued from Page 1)

ceptions, dropped behind the average for the country.

New England and the East North Central States, strong industrial sections with some farming, just held their own. Of course, New England has deeply rooted wealth and long established industries reverting to the early days of the country. They have passed through many economic storms and survived and will do so again, evidently, as these sales figures seem to show.

In the east North Central States the situation is quite different. This section is largely dominated by the motor and steel industries which have both been terribly hard hit by the depression and yet this section has been able to maintain its sales ratio with the average of the country. This is also a strong farm section which tends to give it balance. Balanced industrial and farming activities tend towards a healthy condition which seems to be born out by these figures. More likely, however, the strength of this section lies in the wealth acquired during the boom years giving to it its sustained purchasing power.

Sales of passenger cars in the East South Central States fell off 18 per cent. below the average of the country. This was the lowest of any section in the country, but is not at all difficult to explain when it is recalled that this section suffered not alone from economic conditions but from the flood that destroyed millions of acres of farm lands. The wonder is that they have done as well as they have.

Next to the East South Central States, showing the greatest decline, comes the Pacific Coast, generally accredited with being very strong financially both in farming and industry. The sales in this section dropped 14 per cent. below the average for the United States. This seems about as incongruous as the relative gain shown by the West South Central states.

The sales of cars in the South Atlantic States declined only 45.3 per cent. in the first nine months, which is a loss of 5 per cent. below the drop of 43.2 per cent. for the country. The South continues to give evidence of its financial stability. This section takes 10 per cent. of the cars sold in this country.

The wheat and corn section of the United States, the west north central states, show a decline of 9.0 per cent. below the average for the United States. With wheat and corn selling only slightly above the cost of production and in some cases even below, it is not exactly strange that the people in these states have been unable to do very much buying. Bank failures have also undoubtedly contributed their share to the misfortunes of this section holding up the buying of not only cars, but many other products as well.

The mining and cattle section of the country also shows a substantial drop of 12 per cent. from the average of the United States. This is the least important section of the country from the point of view of the motor industry because it normally takes less than 4 per cent. of the cars sold annually.

It is encouraging to note that the three sections, forming the northeastern part of the country and taking about 60 per cent. of the cars sold annually, have held up so well under these extreme economic conditions. It augurs well for the motor industry next year with general business now defintely on the mend.

M. E. M. A. ANNOUNCES 19 NEW MEMBERS ON ROLLS SINCE JANUARY

(Continued from Page 1)

Corporation, Long Island City, N. Y.; Columbia Protektosite Company, Carlstadt, N. J.; Crescent Automotive Cable Company, Providence, R. I.; National Battery Company, St. Paul, Minn.; Silver King Hydraulic Jack Company, Cleveland, O., and Southern Cotton Oil Company, Savannah, Ga.

It includes also two companies which were accepted at the August meeting of the directors, namely: Ahlberg Bearing Company, Chicago, Ill., and Globe-Union Manufacturing Company, Milwaukee, Wis.

The membership committee also reported that three companies which had resigned from the association at the beginning of the year had again become affiliated through the filing of applications for reinstatement.

BRAKE.....1933

WILL BE THE

"Power Brake Year"—

96% are BENDIX

ay years on many makes of bus,
motor car, B-K Vacuum Power
ected lives and property; have
hways safer. • This sturdy, effi-
duct is further convincing proof
pates each new requirement for
hen Public Opinion demands,
At the Auto Shows, note the
ming preponderance of qual-
which will now be equipped
K Vacuum Power Brakes.

BRAGG-KLIESRATH CORPORATION
401 Bendix Drive, South Bend, Indiana
(Subsidiary of Bendix Aviation Corporation)

AKES ARE

PRODUCTS

Cumulative New Commercial Car Registration Statistics, September, 1932

Figures in this table are from R. L. Polk & Co. of Detroit, with the exception of Illinois, which are supplied by the Robinson Advertising Service, Springfield, Ill., and New Jersey, which are furnished by the New Jersey Motor List Co., New Car Division, Trenton, N. J. Metropolitan district figures compiled by Sherlock & Arnold are included in New York state total. Readers desiring county, city or town lists, or lists of owners in any given section, may obtain these by addressing any of these three companies. Some of this data has been published previously, but it is given here complete for the convenience of our subscribers. Commercial car figures do not include buses.

Returns for today: Alabama, Arizona, Iowa, Kentucky, Massachusetts, Nevada, New Jersey, Oklahoma and Texas

In this table, 42 states and the District of Columbia

States	Autocar	Brockway	Chevrolet	Diamond-T	Dodge	Federal	Ford	G. M. C.	Indiana	International	La France-Republic	Mack	Pierce-Arrow	Reo	Sterling	Stewart	Studebaker	White	Willys-Overland	Miscellaneous	Totals	States
Alabama	2		99		2		94	1		5		1		1							205	Alabama
Arizona			22				28			5							2			1	58	Arizona
Arkansas			52	1	2	1	33	1		11				1							102	Arkansas
California	1		215	1	36		390	34	15	38		3		22	3	1	23	6	2	18	808	California
Connecticut	1	2	80		16	5	95	10	2	23		1		10			3	1	1	1	251	Connecticut
Delaware			14				14	2		1				2			4			2	39	Delaware
Florida			69		6		88	2	1	7				5						11	189	Florida
Georgia			76		9	2	116	2	6	27				1			2	2		7	250	Georgia
Idaho			20		2	1	35	1		5				1			1				66	Idaho
Illinois	1		169	20	31	2	440	8	3	59	1	2		12	2		4	2	4	7	767	Illinois
Indiana	1		181	4	23	1	148	14	13	41	1	1		8		2	8	3	2	2	453	Indiana
Iowa			126	4	11		104	1		48			1	4			4		2	5	310	Iowa
Kansas			142	3	4	1	146	8	1	34		1	1	3			6		2	2	354	Kansas
Kentucky			79	3	7	27	96	7	1	40		1		4		1	3	1		2	272	Kentucky
Louisiana			85	2	6		78	1		17				5						4	198	Louisiana
Maryland	7	4	97	2	10	1	61	4	10	30		6		7		1	2			3	245	Maryland
Massachus'ts	8	1	123	6	25	3	261	34	2	32	2	14		10	1	4	1	9	1	16	553	Mass.
Michigan			175	4	21	4	267	17	1	38	1			16			11	2	1	6	564	Michigan
Minnesota			134	11	15	1	118		1	33		2		4		1	6		1	2	329	Minnesota
Missouri			232	15	22	2	270	11	3	46		1		10			9	6		6	633	Missouri
Montana	2		43		4		29	1	1	24	1						5	1	1		112	Montana
Nebraska			35	2	2		59	3		27				1			1		1	1	132	Nebraska
Nevada			7		1		8	1	1	2										1	21	Nevada
New Hamp.	1	1	41	2	3		47	4		8	1	2		1			2		1	2	116	New Hamp.
New Jersey	4	5	219	13	42	1	226	17	9	59		7		10	1	3	6	4	2	16	644	New Jersey
N. Mexico			21				34		2	3											60	N. Mexico
North Car.			225	1	8		129	6	2	17				1						13	402	North Car.
North Dakota			30	1	1		34	3		21		2		1			1				94	North Dak.
Ohio,	5		234	10	44	1	318	18	9	70				26			6	6	6	15	768	Ohio
Oklahoma			161		16	1	111	7		31				2			2				331	Oklahoma
Oregon			40		3	1	31	1		5				2			1			1	85	Oregon
Pennsylvania	5	11	355	6	112	9	465	43	14	123	1	11		22		21	17	2	10	18	1245	Pennsylvania
Rhode Island	2		24		4	5	37	4		4				2							82	Rhode Isl.
S. Carolina			53		8		54	6		4	1									2	128	S. Carolina
S. Dakota			25		1		11	1		10		1		1							50	S. Dakota
Texas			467	2	17	2	470	20	17	73		3		3			1	1	3	4	1083	Texas
Utah			63		5		36	1		7							2				114	Utah
Vermont			34		2		37	1	2	6									1		83	Vermont
Virginia	1		157		9	1	191	9	2	10		4						3	1	2	390	Virginia
Washington			49	2	6	2	83	8	3	18				3			6		2	3	185	Washington
W. Virginia	2		76		7		69	3	1	8		2		5			1		1		175	W. Virginia
Wisconsin			111	8	15	3	111	9	1	42			1	5	1		5		1	5	318	Wisconsin
Dist. of Col.			37		4	3	51	7		4							1			7	114	Dist. of Col.
Totals	43	24	4697	123	562	80	5523	331	123	1116	9	65	3	211	8	34	146	49	46	185	13378	Totals
Alabama, 1931			147		1		121			3				1		2					275	Alabama, '31
Arizona, 1931			37		2		56	1		7				2			1			1	107	Arizona, '31
Arkansas, '31			67		2		56	1		17											143	Arkansas, '31
California '31	8		367	6	64	13	860	39		51	1	7		34	25	3	24	8	12	75	1597	Calif'rnia, '31
Conn'ticut '31	7	2	150	1	21	10	203	21		42	2	16	5	25	3	6	10	5	3	4	536	Con'ticut, '31
Delaware, '31			28		1		34	1		9				2						1	76	Delaware, '31
Florida, 1931			149		4	1	195	1		13				2				1	1		358	Florida, 31
Georgia, 1931		1	196		11	1	173	5		20		1		5			2	9		3	427	Georgia, '31
Idaho, 1931			69		6		76	6		17		1		3			1	1	4	3	187	Idaho, 1931
Illinois, 1931	2	2	355	40	53	5	426	55		84		6		14	2	1	12	4	12	47	1120	Illinois, 1931
Indiana, 1931		5	438	5	48		395	39		87				13		2	13		28	2	1076	Indiana, '31
Iowa, 1931		1	226	2	15		185	6		48				10			12	1	4	2	512	Iowa, 1931
Kansas, 1931		1	121	4	13		117			14				7			4		6	11	298	Kansas, 1931
Kentucky, '31		5	125	2	9		144	13		41		3		11			5	1	6		365	Kentucky, '31
Louisiana, '31			208	2	20	1	205	4		48		1		2			1	2	1	1	496	Louisiana, '31
Maryland, '31	1	3	144	4	5	1	132	11		33	3	1	1	16		1	3	8	2	9	378	Maryland, '31
Mass., 1931	19	4	229	6	48	14	494	63		54	5	15		42	5	4	9	22	6	12	1051	Mass., 1931
Michigan, '31	1		340		25	6	503	28		56	3			47			11	3	7	11	1041	Michigan, '31
Minnesota, '31			170	13	14	2	190	7		58		1	1	10	1		4	1	8	6	486	Minn., '31
Missouri, 1931		4	305	14	23	3	334	12		65	1	3		14	1		6	2	7	11	805	Missouri, '31
Montana, '31			37		7		68			23				2			5			1	143	Montana, '31
Nebraska, 1931			119	2	8		119	1		33		1		1			6	1	3		294	Nebraska, '31
Nevada, 1931			10				25			1		1		2				1		1	41	Nevada, '31
N. Hamp., '31		3	65	6	4		100	2		7		2		5		3	1		3		201	N. Hamp., 31
N. Jersey, '31	10	13	321	10	61	7	472	51		83	3	11		30	10	9	12	16	12	31	1162	N. Jersey, '31
N. Mexico, '31			44	1	1		34			6				1							87	N. Mexico, '31
N. Car., '31	2		458	1	19		328	6		32		3		6				3	4	10	872	N. Car., 1931
North Dak, '31			43		5		45			31				1					1	3	129	Nor. Dak. '31
Ohio, 1931	3	3	323	3	43	4	447	36		82	3	3		43	3	7	29	34	15	38	1119	Ohio, '31
Oklahoma, '31			138	3	8		105	7		14	2			3			4		3	1	288	Okla., 1931
Oregon, '31			69		4	2	102	2		10		1		10	1		2	2		7	212	Oregon, 31
Penn., 1931	24	14	603	26	118	1	961	30		151	4	33	1	84	8	23	33	35	40	42	2231	Penn., 1931
Rhode Isl., '31	1	3	35	3	3		82	18		8	1	2		14					1	6	177	R. Isl., '31
S. Car., '31			122		8	1	104	3		2										3	243	S. Car., 1931
S. Dakota, '31			48	4	5	1	27	1		24							4		1	1	116	S. Dak., '31
Texas, 1931		3	697	5	11	4	529	18		136		4		18			13	12	11	23	1484	Texas, 1931
Utah, 1931			57		5		86	4		10				13			1		1	2	179	Uta., 1931
Vermont, '31		1	40		4		41	3		12				4				1	5		111	Vermont, '31
Virginia, 1931	2		267		13	1	226	7		34	2	4		2				5	2	1	566	Virginia, '31
Wash'gton, '31			104	1	10		174	9		32		1		10			7	4	3	14	369	Wash., '31
W. Vir., '31		1	84	1	12	1	112	3		17	1			6			8	1	7	1	255	W. Vir., '31
Wisconsin, '31			224	15	22	1	219	11		37				12	3	1	6	3	10	13	577	Wis., 1931
D. of Col., '31	4		44	10	4	2	117	18		4							4			7	214	D. of C., '31
Totals, '31	84	69	7814	191	760	82	9422	543	*	1556	31	121	8	527	62	62	249	199	229	404	22404	Totals, '31

*Combined with Brockway.

PASSENGER CAR EQUIPMENT AND ACCESSORIES

MAKE AND MODEL	Speedometer	Clock	Fuel Gauge	Lock	Spark Plugs	Battery	Heat Indicator	Cig. Lighter	Non-Shatter Glass	Heater	Horns Make & No.	Adjustible Seats	FREE WHEELING Make	FREE WHEELING Clutch Control	FREE WHEELING Synchro Mesh	Trunk Rack	Trunk	Windshield Wings	Wired for Radio	Color Options	Wheels	Wire or Wood	Spring Covers	Shock Absorber
Auburn 8-100	—	—	—	—	Cha	USL	—	Cas	—	—	—	—	LGS	No	Yes	C	—	—	No	C	**	—	—	Del-RC
Auburn 12-160	—	—	—	—	Cha	USL	—	Cas	—	—	—	Yes	LGS	No	Yes	Yes	—	—	No	Yes	**	—	—	Hou-RC
Austin	NE	NO	K-S	B-S	Cha	USL	No	No	No	No	—	—	—	—	—	—	—	—	No	—	—	—	—	Own
Buick 32-50	AC	—	AC	Oak	AC	DR	AC	No	§LOF	—	DR-1	—	Own	Yes	Yes	No	—	—	No	Yes	K-H	Wo	—	Del-RC
Buick 32-60	AC	—	AC	Oak	AC	DR	AC	No	§LOF	No	DR-1	—	Own	Yes	Yes	No	—	—	No	Yes	K-H	Wo	—	Del-RC
Buick 32-80	AC	—	AC	Oak	AC	DR	AC	Cas	§LOF	—	DR-1	—	Own	Yes	Yes	No	—	—	No	Yes	K-H	Wo	—	Del-RC
Buick 32-90	AC	—	AC	Oak	AC	DR	AC	Cas	§LOF	—	DR-1	—	Own	Yes	Yes	No	—	—	No	Yes	K-H	Wo	And	Del-RC
Cadillac 355B	AC	Jag	AC	DR	AC	DR	AC	Cas	LOF	—	DR-2	Yes	No	Ben	Yes	No	TS	—	Yes	Yes	K-H	Wi	And	Del-RC
Cadillac 370B	AC	Jag	AC	DR	AC	DR	AC	Cas	LOF	—	DR-2	Yes	No	Ben	Yes	No	TS	—	Yes	Yes	K-H	Wi	And	Del-RC
Cadillac 452B	AC	Jag	AC	DR	AC	DR	AC	Cas	LOF	—	DR-2	Yes	No	Ben	Yes	No	TS	—	Yes	Yes	K-H	Wi	And	Del-RC
Chevrolet	AC	—	AC	DR	AC	***	AC	—	$	*	—	—	—	No	Yes	—	—	—	No	—	Own	Wi	—	Del
Chrysler 6 CI	AC	No	Yes	No	AC	Wil	Yes	$	$	$	DR	Yes	Own	$	No	$	$	$	Yes	Yes	MW	Wi	§	Del-RC
Chrysler 8 CP	AC	No	Yes	No	AC	Wil	Yes	$	$	$	DR	Yes	Own	Yes	No	$	$	$	Yes	Yes	MW	Wi	And	Del-RC
Chrysler Imp 8 CH	AC	Elgin	Yes	No	AC	Wil	Yes	Cas	$	$	DR	Yes	Own	Yes	No	$	$	$	Yes	Yes	MW	¶	And	Del-RC
Chrysler Cust 8 CL	AC	Elgin	Yes	No	AC	Wil	Yes	Cas	Dup	$	DR	Yes	Own	Yes	No	$	$	$	Yes	Yes	MW	¶	And	Hou-RC
Cord Front Drive	Ste	No	Mot-M	DR	Cha	USL	Ster	Cas	—	No	—	—	—	—	—	—	—	—	No	—	—	—	—	Hou
De Soto Six	NE	No	Mot-M	DR	AC	Wil	Yes	No	$	No	—	—	—	$	—	CCC	$	%	Yes	Yes	K-H	Wi	—	Del
De Vaux 6-80	Ste	No	Mot-M	Yale	AC	Nat	Mot-M	No	$	No	DR-1	Yes	WC	No	No	Yes	$	No	No	—	MW	¶	No	Hou
Dodge Six	—	$	AC	DR	AC	Wil	AC	$	$	$	— 1	—	—	$	—	—	—	—	Yes	—	—	Wi	§	RC
Dodge Eight	—	$	AC	DR	AC	Wil	AC	$	$	$	— 1	Yes	—	Yes	—	—	—	—	Yes	—	—	Wi	And	RC
Essex Gr. Su. 6	Ste	—	Mot-M	Ele	AC	Ex	K-S	—	Dup	—	EA-1	Yes	WG	Yes	Yes	$	$	—	No	Yes	MW	¶	—	Mon-RC
Ford 4	Own	No	Yes	Hurd	Cha	Own	No	—	Yes	—	—	Yes	No	No	Yes	—	—	—	Yes	—	Own	Wi	No	Hou-RC
Ford V-8	Own	No	Yes	Hurd	Cha	Own	No	—	Yes	—	—	Yes	No	No	Yes	—	—	—	Yes	—	Own	Wi	No	Hou-RC
Franklin Olympic	Ste	No	K-S	Yale	Cha	Wil	No	Yes	—	No	Kla	Yes	WG	No	Yes	$	$	No	No	—	—	Wi	No	Del
Franklin V-12	NE	Borg	Yes	Yale	Cha	Wil	No	Cas	LOF	No	—	—	BW	No	Yes	‖	‖	—	Yes	—	—	Wo	—	RC
Franklin Series 16	NE	Borg	Yes	Yale	Cha	Wil	No	Cas	Yes	No	—	—	BW	No	Yes	‖	‖	—	Yes	—	—	Wo	And	RC
Graham 6	NE	—	K-S	Her	Cha	Wil	K-S	No	§LOF	No	DR-1	Yes	WG	No	No	No	No	—	No	Yes	MW	¶	No	Del
Graham 6 (1933)	Ste	—	K-S	Her	Cha	Wil	K-S	No	§LOF	No	DR-2	Yes	—	Yes	Yes	No	No	—	No	Yes	MW	¶	No	Del
Graham 8	Ste	—	K-S	Her	Cha	Wil	K-S	No	§LOF	No	DR-2	Yes	WG	No	Yes	No	No	—	No	Yes	MW	¶	No	Del-RC
Hudson Great 8	Ste	—	Mot-M	Ele	AC	Ex	K-S	—	Dup	—	EA-1	—	WG	Yes	Yes	Su	Su	—	No	Yes	—	Wi	—	Gab-RC
Hupmobile 216	Ste	No	Mot-M	Ele	Cha	Wil	Mot-M	No	§Dup	No	—	Yes	WG	No	Yes	S	—	—	Yes	Yes	MW	¶	—	Gab-RC
Hupmobile 222	Ste	No	Ste	Ele	Cha	Wil	Ste	No	§Dup	No	—	Yes	WG	No	Yes	S	—	—	Yes	Yes	MW	¶	—	Gab-RC
Hupmobile 226	Ste	No	Ste	Ele	Cha	Wil	Ste	Cas	§Dup	No	SW	Yes	DG	No	Yes	S	—	—	Yes	Yes	MW	¶	Yes	Gab-RC
La Salle 345B	AC	Jag	AC	DR	AC	DR.	AC	Cas	LOF	—	DR-2	Yes	No	Ben	Yes	No	TS	—	Yes	No	K-H	Wi	And	Del-RC
Lincoln V-8	NE	Wal	K-S	Oak	Cha	Ex	Mot-M	Cas	†	No	SW	Yes	Yes	No	Yes	Yes	—	—	Yes	—	K-H	Wi	And	Hou-RC
Lincoln 12	NE	Wal	K-S	Oak	Cha	Ex	Mot-M	Cas	†	No	SW-K	Yes	Yes	No	Yes	Yes	—	—	Yes	—	K-H	Wi	And	Hou-RC
Marmon 8-125	AC	$	AC	DR	Cha	Nat	AC	Cas	—	—	DR-2	Yes	Yes	No	Yes	—	—	—	No	Yes	Day	Wi	—	Gab-RC
Marmon 16	AC	Jag	AC	DR	Cha	Ex	AC	Cas	Yes	—	SW-2	Yes	No	No	Yes	Yes	—	—	No	Yes	MW	Wi	And	Hou
Nash Big 6	Ste	No	K-S	Her	AC	USL	K-S	No	§Dup	No	SW-1	Yes	DG	No	Yes	CS	CS	—	Yes	Yes	MW	¶	—	Del-RC
Nash Standard 8	Ste	No	K-S	Her	AC	USL	K-S	No	§Dup	No	SW-1	Yes	DG	No	Yes	CS	CS	—	Yes	Yes	MW	¶	—	Del-RC
Nash Special 8	Ste	No	K-S	Her	AC	USL	K-S	No	§LOF	No	SW-1	Yes	DG	No	Yes	CS	CS	—	Yes	Yes	MW	¶	Yes	Del-RC
Nash Advanced 8	Ste	Borg	K-S	DR	AC	Ex	K-S	Cas	§LOF	No	SW-2	Yes	DG	No	Yes	CS	CS	—	Yes	Yes	MW	¶	Yes	Del-RC
Nash Ambas. 8	Ste	Borg	K-S	DR	AC	Ex	K-S	Cas	§LOF	No	SW-2	Yes	DG	No	Yes	B	B	—	Yes	Yes	MW	¶	Yes	Del-RC
Oldsmobile F-32	AC	No	AC	BS	AC	DR	AC	Yes	§LOF	—	DR-2	Yes	DG	No	Yes	$	$	$	No	Yes	K-H	¶	$	Lov-RC
Oldsmobile L-32	AC	No	AC	BS	AC	DR	AC	Yes	§LOF	—	DR-2	Yes	DG	No	Yes	$	$	$	No	Yes	K-H	¶	$	Lov-RC
Packard Stand. 8	NE	Jag	K-S	Yes	AC	Pre	Mot-M	Cas	LOF	No	SW	Yes	—	Ben	Yes	CV	CV	No	No	Yes	MW	‡	Yes	Del-RC
Packard De Luke 8	NE	Jag	K-S	Yes	AC	Pre	Mot-M	Cas	LOF	No	SW	Yes	—	Ben	Yes	CV	CV	No	No	Yes	MW	‡	Yes	Del-RC
Packard Light 8	NE	No	Ele	Yes	AC	Pre	Mot-M	Cas	LOF	No	SW	Yes	—	Ben	Yes	—	—	No	No	Yes	MW	‡	Yes	Del-RC
Packard Twin Six	Wal	Wal	Ele	Yes	AC	Pre	Mot-M	Cas	LOF	No	SW-2	Yes	—	Ben	Yes	CSV	CSV	No	No	Yes	MW	¶	Yes	Del-RC
Pierce-Arrow 54	NE	Borg	K-S	Her	Cha	Wil	K-S	Cas	Dup	No	DR-1	Yes	WG	No	Yes	††	††	No	Yes	Yes	K-H	Wo	And	Del-RC
Pierce-Arrow 52	NE	Borg	K-S	Her	AC	Wil	K-S	Cas	Dup	No	DR-1	Yes	WG	No	Yes	††	††	No	Yes	Yes	K-H	Wo	And	Del-RC
Pierce-Arrow 53	NE	Borg	K-S	Her	AC	Wil	K-S	Cas	Dup	No	DR-1	Yes	WG	No	Yes	††	††	No	Yes	Yes	K-H	Wo	And	Del-RC
Plymouth	NE	$	Yes	Sha	AC	Wil	Yes	$	§Dup	—	— 1	Yes	Own	$	No	—	—	—	Yes	—	K-H	¶	—	Del-RC
Pontiac 6	AC	No	AC	DR	AC	DR	AC	No	§LOF	—	— 1	Yes	BW	No	Yes	—	—	—	No	—	K-H	Wi	Yes	Lov-RC
Pontiac V-8	AC	No	AC	DR	AC	DR	AC	No	§LOF	—	— 2	Yes	BW	No	Yes	—	—	—	No	—	K-H	Wi	Yes	Lov-RC
Reo "S"	Ste	No	K-S	DR	Cha	Wil	AC	No	$	No	— 1	Yes	$-WG	Yes	Yes	§§	$	No	No	Yes	M-W	Wi	$	Del
Reo Royale Cust.	Ste	Elgin	K-S	DR	Cha	Wil	AC	Cas	Yes	No	—	Yes	No	Yes	SHG	§§	$	No	Yes	Yes	M-W	Wi	And	Del
Reo Royale	Ste	No	K-S	DR	Cha	Wil	AC	Yes	$	No	—	Yes	No	Yes	SHG	§§	$	No	Yes	Yes	M-W	Wo	And	Del
Reo 825	Ste	No	K-S	DR	Cha	Wil	AC	Yes	$	No	— 1	Yes	No	Yes	SHG	§§	$	No	Yes	Yes	M-W	Wo	And	Del
Rockne 6-65	Ste	No	K-S	Aut	Cha	Wil	K-S	—	§Lof	No	SW-1	Yes	BW	No	Yes	D	No	No	Yes	Yes	K-H	Wi	And	Del
Rockne 6-75	AC	No	K-S	Aut	Cha	Wil	K-S	—	§Lof	No	SW-1	Yes	BW	No	Yes	D	No	No	Yes	Yes	K-H	Wi	And	Hou
Studebaker 6-55	Ste	No	AC	DR	Cha	Wil	Ste	No	†	No	SW-1	Yes	BW	No	Yes	Yes	Yes	—	Yes	Yes	K-H	Wi	And	Hou
Studebaker Dic. 62	Ste	No	AC	DR	Cha	Wil	Ste	No	†	No	SW-1	Yes	BW	No	Yes	Yes	B	—	Yes	Yes	K-H	Wi	And	Hou
Studebak'r Com.71	Ste	No	AC	DR	Cha	Wil	Ste	No	†	No	SW-1	Yes	BW	No	Yes	B	B	—	Yes	Yes	K-H	Wi	And	Hou-RC
Studebak'r Pres.91	Ste	Borg	AC	DR	Cha	Wil	Ste	Cas	†	No	SW-1	Yes	BW	No	Yes	B	B	—	Yes	Yes	K-H	Wi	And	Hou-RC
Stutz L AA	Ste	Wal	Mot-M	DR	Cha	Pre	Mot-M	Cas	Dup	—	DR-1	Yes	—	No	Yes	—	—	—	No	Yes	M-W	Wi	—	Gab
Stutz SV	Ste	Wal	Mot-M	Her	Cha	Pre	Mot-M	Cas	Dup	—	DR-1	Yes	—	No	Yes	Co	—	Sp	No	Yes	K-H	Wi	—	Gab
Stutz S V	Ste	Wal	Mot-M	Her	Cha	Pre	Mot-M	Cas	Dup	—	DR-1	Yes	—	No	Yes	Co	—	—	No	Yes	K-H	Wi	—	Gab
Stutz DV 32	Ste	Wal	Mot-M	Her	Cha	Pre	Mot-M	Cas	Dup	—	DR-1	Yes	—	No	Yes	Co	—	—	No	Yes	K-H	Wi	—	Gab
Willys-Ov. 6-90 A	NE	No	Yes	Aut	Cha	USL	Yes	S-R	§LOF	No	—	Yes	Own	No	Yes	—	—	S-R	No	—	K-H	Wi	—	Mon-R-C-C
Willys-Ov. 8-88 A	NE	No	Yes	Aut	Cha	USL	Yes	C	§LOF	No	— 2	Yes	Own	No	Yes	—	—	S-R	No	—	K-H	Wi	—	Mon-R-C-C
Willys-Knig't 66 E	NE	Wal	Yes	Aut	Cha	USL	Yes	Yes	LOF	No	— 2	Yes	Own	No	Yes	Sp	—	—	No	—	K-H	Wi	—	Mon-R-C-C

KEY TO ABBREVIATIONS

AC—A C Spark Plug Company, Flint, Mich.
And—Anderson Mfg. Company, Cambridge, Mass.
Aut—Electric Auto-Lite Co., Toledo, O.
B—Brougham.
BS—Briggs-Stratton Co., Milwaukee, Wis.
BW—Borg Warner Corp.
Ben—Bendix Corp.
Borg—Geo. W. Borg Corp.
C—Custom Models.
CCC—Convertible Custom Coupe.
Co—Coupe.
CS—Convertible Sedan.
CSV—Convertible Sedan and Victoria.
CV—Convertible Victoria.
Cas—Casco Prodcuts Corp., Bridgeport, Conn.
Cha—Champion Spark Plug Co., Toledo, O
D—De Luxe Models.
DG—Detroit Gear and Machine Co., Detroit, Mich.
DR—Delco Remy Corp, Anderson, Ind.
Day—Dayton Wire Wheel Corp.
Del—Delco Products Corp., Dayton, Ohio
Dup—Duplate Corp., Pittsburg, Pa.
EA—E. A. Laboratories, Brooklyn, N. Y.
Ele—Mitchell Specialty Co., Holmesburg, Pa
Elgin—Elgin Watch Co., Elgin, Ill.
Ex—Electric Storage Battery Co., Philadelphia, Pa.
Gab—Gabriel Company, Cleveland, O.
Her—Hershey Mfg. Co., Chicago, Ill.
Hou—Houde Engineering Corp., Buffalo, N. Y.
Hurd—Hurd Lock Co., Almont, Mich.
Jag—Jaeger Watch Company, N. Y. City
K—Kellog.
KH—Kelsey Hayes Wheel Corp.
Kla—Klaxon Company, Anderson, Ind.
KS—King Seeley Corp., Ann Arbor, Mich
LGS—LGS Corp.
LOF—Libbey-Owens-Ford Glass Company, Toledo, O.
Mon—Monroe Auto Equipment Mfg. Co., Monroe, Mich.
Mot M—Moto Meter Gauge and Equipment Corp., L. I. City, N. Y.
MW—Motor Wheel Corp., Lansing, Mich.
NE—North East Appliance Corp., Rochester, N. Y.
Nat—National Lead Battery Co., St. Paul, Minn.
Oak—Oakes Products Corp., Chicago, Ill.
P—Phaeton.
Pre—Prest-O-Lite Company, Indianapolis, Ind.
RC—Ride Control.
S—Sedan.
Sch—Schwarze Electric Co., Adrian, Mich.
SHG—Synchronized Herringbone Gear.
Sp—Speedsters.
SR—Sport Roadster.
SU—Suburban.
SW—Sparks Withington Co., Jackson, Mich.
Sha—Shaler Lock Co., Milwaukee, Wis.
Ste—Stewart Warner Speedometer Corp., Chicago, Ill.
Ster—Sterling Clock Co., La Salle, Ill.
TS—Town Sedan.
Thom—Seth Thomas Clock Co., N. Y City
USL—USL Battery Corp., Niagara Falls, N. Y.
WC—Warner Corp.
WG—Warner Gear Co., Muncie, Ind.
Wal—Waltham Watch Co., Waltham, Mass.
Wi—Wire.
Wil—Willard Storage Battery Co., Cleveland, O.
Wo—Wood.
Yale—Yale and Towne Mfg Co., Stamford, Conn.
*Various makes.
**Motor Wheel Corp., wood wheels: Dayton Wire wheels optional.
***Using USL and DR batteries.
§Using LOF and Duplate Safety Glass.
††Club Brougham, Club Sedan, Club Barline and Connvertible Sedans.
‡Optional.
§§Sport Sedan, Sport Coupe and Sport Convertible Coupe.
$Extra equipment at additional cost.
¶Wood or wire wheels optional.
‡Disk, Wire or Wood optional.
‖Phaeton, Roadster and Business Roadster
§§Seven Sedan; Limousine, Pirate Touring and Pirate Phaeton.

FISK TIRE CO.'S PLANT WINS SAFETY PRIZE

Springfield, Mass., Oct. 25.—Fisk Rubber Company has been adjudged second in competition among rubber companies for accident prevention the first six months of this year, sponsored by the National Safety Council, it was announced last night. A certificate of merit has been awarded the company for its record. The company winning first award, it is announced, employed less than 200 men.

E. A. Dearth, general Fisk plant manager, made the following statement: "This accomplishment was possible only through strict adherence to safety principles by every member of our working force and we feel very proud of the results, not only because they place us in the front ranks of the rubber industry, in the maintenance of a safe plant, but more especially because accidents represent waste such as loss in wages and loss in production, with the attendant pain and suffering and possible permanent disability and reduced earning power."

DEPT. OF AGRICULTURE ADDS 18 NEW ROCKNES

Detroit, Oct. 25.—George M. Graham, vice-president of Rockne Motors Corporation, today announced the sale of eighteen additional Rocknes to the United States Department of Agriculture.

The cars will be used by the Department Bureaus of Biological Survey, Public Roads and Agricultural Engineering respectively, and will be shipped to various parts of the country.

This order brings the total of Rockne cars purchased by the United States Department of Agriculture up to 28—all purchases having been made within recent months.

ARCHER PROMOTED

Philadelphia, Pa., Oct. 25.—Appointment of Fred C. Archer as manager of the Philadelphia district, with offices at 401 No. Broad St., is announced by the Lincoln Electric Company, Cleveland, O. Previous to his joining the Lincoln staff, Archer was president of the Fred C. Archer Company, which he organized in 1925.

TWIN COACH BUSY ON RUSH CONTRACT

Kent, O., Oct. 25.—The Twin Coach Company has started on a rush order of twenty-three buses just received, according to Paul Brehm, general manager of the Kent plant.

The order is from Chattanooga, Tenn., for twenty coaches of the twenty-passenger type. The other is for three special buses for the Auto Interurban Company of Spokane, Wash. According to Brehm, the working force of the Kent plant has been increased to 350 in order to get the work out on time. This number will work at least part time during the next month or six weeks.

WELLER PROMOTED

Evansville, Ind., Oct. 25.—Arthur L. Weller, for the past eight years assistant manager of the local branch, International Harvester Company, has been promoted to manager. He succeeds F. P. Johnson, who has been appointed sales representative in the southwest region with headquarters in Memphis, Tenn.

CUMULATIVE NEW PASSENGER CAR

In this table, 42 states and the District of Columbia **Returns for today: Alabama,**

States	AUBURN GROUP			CHRYSLER GROUP					FORD GROUP			GENERAL MOTORS GROUP						
	Auburn	Cord	Totals	Chrysler	De Soto	Dodge	Plymouth	Totals	Ford	Lincoln	Totals	Buick	Cadillac	Chevrolet	La Salle	Oldsmobile	Pontiac	Totals
Alabama	1		1	4	2	2	24	32	319		319	6		265		3	9	283
Arkansas	1		1	2	4	4	22	32	158		158	5	1	149		2	4	161
Arizona					4	1	8	13	97		97	13		45		4	13	75
California	95	1	96	137	163	120	455	875	2426	30	2456	189	39	993	22	94	160	1497
Connecticut	14		14	36	34	20	168	258	302	3	305	53	11	280	8	24	71	447
Delaware				5	2	2	21	30	73		73	10	1	60	1	6	10	88
Florida	9		9	25	8	9	80	122	410	1	411	17	4	303	2	13	33	372
Georgia	1		1	14	7	19	53	93	468	1	469	36	2	378		14	36	466
Idaho	1		1	2	2	2	6	12	39		39	2	1	44		4	2	53
Illinois	61	1	62	82	115	84	595	876	1291	25	1316	99	25	967	34	103	165	1393
Indiana	29		29	37	74	38	238	387	725	4	729	49	3	554		48	70	724
Iowa	6	1	7	23	12	23	106	163	488	2	490	24	2	470	1	33	53	583
Kansas	13		13	16	16	24	144	200	652	4	656	28	2	550	5	27	66	678
Kentucky	7		7	13	24	26	133	196	371	3	374	12	2	363	2	10	21	410
Louisiana	8		8	1	10	25	39	75	423	1	424	17	2	404	3	15	22	463
Maryland	15	1	16	19	24	13	93	149	423		423	33	3	505	1	23	48	613
Massachusetts	36		36	69	64	56	368	557	920	23	943	146	13	778	13	97	179	1226
Michigan	16		16	47	65	43	285	440	1310	11	1321	67	34	775	16	104	140	1136
Minnesota	7		7	22	21	18	148	209	434	3	437	35	3	483	3	36	43	603
Missouri	11	1	12	27	62	39	287	415	899	8	907	78	6	755	5	67	74	985
Montana				1	1	1	27	30	80		80	8	1	69		5	10	93
Nebraska	4		4	11	3	7	40	61	308	1	309	16	5	235	4	20	41	321
Nevada	3		3	3	3	3	12	21	51	1	52	5		42	2	2	8	59
New Hampshire	2		2	11	7	3	48	69	129	1	130	17		124	2	5	19	167
New Jersey	35		35	76	84	53	334	547	919	6	925	152	23	823	17	82	149	1246
New Mexico				2	1	2	5	10	57		57	4		53			4	61
New York	126	1	127	268	259	200	1158	1885	2534	57	2591	526	80	2224	53	279	360	3522
North Carolina	6		6	26	9	11	66	112	497	2	499	14	2	416	3	14	18	467
N. Dakota				1	4	3	24	32	114		114	6		99		6	1	112
Ohio	55		55	84	126	81	519	810	1314	6	1320	81	22	956	15	99	145	1318
Oregon	2		2	7	8	8	25	48	152	4	156	14		92		12	10	128
Pennsylvania	71		71	211	182	137	881	1411	1798	17	1815	242	28	1484	32	189	290	2265
Rhode Island	6		6	11	21	11	64	107	134		134	30	3	90	3	4	48	178
South Carolina	3		3	10	5	6	31	52	314	1	315	5		219	1	3	17	245
South Dakota				7	1	7	25	40	101		101	4		104	2	12	6	128
Texas	37		37	71	50	67	205	393	2050	12	2062	128	6	2058	7	46	142	2387
Utah	1		1		8	5	18	31	72		72	5	1	66		5	11	88
Vermont	3		3	4	5	4	31	44	77	1	78	11	2	67		11	14	105
Virginia	4		4	14	35	31	88	168	744	2	746	30	3	508	3	21	64	629
Washington	5		5	16	15	11	66	108	248	1	249	29	1	152		16	30	228
West Virginia	4		4	16	7	29	83	135	271	1	272	10	2	209		9	21	251
Wisconsin	14		14	21	33	30	185	269	432	1	433	41	6	413	8	49	61	578
Dist. of Columbia	13		13	15	12	15	27	69	329	3	332	25	2	239	2	17	60	345
Line Total	725	6		1467	1592	1292	7235		24953	236		2322	341	19863	270	1633	2748	
Group Total			731					11586			25189							27177
Alabama, 1931	1	1	2	6	5	1	16	28	281		281	17		389	1	1	9	417
Arkansas, 1931				8	1	22	56	87	185		185	7	3	169		5	7	191
Arizona, 1931	4		4	9	8	10	45	72	130		130	20		119		5	8	152
California, 1931	200	1	201	285	227	241	1322	2075	3164	29	3193	464	80	2080	37	130	245	3036
Connecticut, 1931	39	2	41	71	57	53	275	456	447	3	450	134	16	549	11	52	144	906
Delaware, '31	2		2	15	4	3	28	50	119		119	21	1	74	4	9	18	127
Florida, 1931	22	1	23	30	7	19	202	258	392	3	395	41	3	502	2	15	62	625
Georgia, 1931	16	1	17	21	13	40	132	206	602	3	605	55	4	577	4	18	42	700
Idaho, 1931	4	1	5	4	5	11	44	64	108		108	12		100		2	5	119
Illinois, 1931	120	13	133	247	165	209	1138	1759	1893	13	1906	269	39	1741	29	207	324	2609
Indiana, 1931	68	6	74	117	134	125	650	1026	873	7	880	146	16	1061	6	106	197	1532
Iowa, 1931	20	1	21	63	22	85	264	434	703	2	710	56	2	842		47	126	1073
Kansas, 1931	12	3	15	16	15	34	130	195	364		364	38	2	520	2	25	74	661
Kentucky, 1931	16		16	78	19	62	287	446	494		494	35	3	696	2	10	74	820
Louisiana, 1931	8		8	27	20	26	106	179	365	1	366	18	3	479	1	13	42	556
Maryland, 1931	14		14	46	20	23	232	321	470	1	471	85	3	735	1	28	110	962
Mass., 1931	74	5	79	146	57	119	665	987	1400	11	1411	317	44	1244	37	132	302	2076
Michigan, '31	42	5	47	161	99	228	1175	1663	1679	11	1690	234	45	1409	28	182	244	2142
Minnesota, 1931	20	1	21	62	22	34	391	509	430		430	80	7	678	4	45	81	895
Missouri, 1931	47	4	51	86	60	92	474	712	1031	9	1040	104	11	1218	9	54	142	1538
Montana, 1931	2		2	14	5	5	43	67	82		82	9		80	1	4	29	123
Nebraska, 1931	10		10	19	11	28	156	214	362		362	40		474	1	18	54	587
Nevada, 1931	7		7	9	3	2	18	32	56	2	58	9		45		4	7	65
N. Hampshire, '31	9		9	17	7	13	116	153	1	1	185	34	3	207	2	31	41	318
New Jersey, 1931	111	4	115	265	54	125	737	1181	13	13	1238	401	53	1445	40	175	268	2382
New Mexico, 1931				3	2	4	28	37	60		60	5	2	73			8	88
New York, 1931	290	10	300	591	234	353	2054	3232	2705	51	2756	933	156	3436	81	442	608	5656
N. Carolina, 1931	14		14	59	21	57	253	390	703	4	707	47	4	696	6	23	74	850
N. Dakota, '31	1		1	10	3	6	53	72	160	1	161	18		122		8	13	161
Ohio, 1931	112	6	118	222	141	143	1343	1849	1472	8	1480	195	38	1623	26	132	292	2306
Oregon, 1931	7		7	29	24	14	81	148	247	1	248	33	1	222	2	18	30	306
Pennsylvania, '31	157	2	159	442	200	324	1787	2753	2074	21	2095	490	62	2487	53	228	490	3810
Rhode Island, '31	16		16	48	45	25	131	249	208	2	210	49	9	225	3	14	64	364
So. Carolina, 1931	5		5	15	10	12	71	108	358		358	14		341		7	22	384
So. Dakokta, 1931				17	17	25	62	121	140		140	17		159	1	23	19	219
Texas, 1931	23	1	24	86	67	81	366	600	1179	3	1182	194	15	1670	8	37	138	2062
Utah, 1931	6		6	8	6	10	22	46	141		141	25	1	148	1	7	15	197
Vermont, 1931	7		7	10	5	10	52	77	107		107	24	1	95	4	7	27	158
Virginia, 1931	38		38	64	68	46	273	451	814	1	815	59	6	865	3	24	126	1083
Washington, 1931	15		15	37	50	30	210	327	332	2	334	70	8	281	3	38	62	462
W. Virginia, 1931	15	1	16	55	18	33	177	283	284	2	286	35		317	3	19	67	441
Wisconsin, '31	30	1	31	82	51	78	433	644	656	5	661	124	5	890	4	73	173	1269
Dist. of Col., 1931	20		20	25	27	48	189	289	617	4	621	62	7	442	3	33	96	643
Line Tot'l, '31	1624	70		3625	2029	2939	16287		29301	214		5040	653	31525	423	2451	4979	
Group Tot'l, '31			1634					24859			29515							45971

*Not in production.

REGISTRATION STATISTICS, SEPTEMBER, 1932

Kentucky, Massachusetts, Texas

States	HUDSON GROUP			STUDEBAKER GROUP				WILLYS-OV'D GROUP			NON-AFFILIATED MANUFACTURERS									State Total
	Essex	Hudson	Totals	Pierce-Arrow	Rockne	Studebaker	Totals	Willys-Overland	Willys-Knight	Totals	De Vaux	Franklin	Graham	Hupmobile	Marmon	Nash	Packard	Reo	Miscellaneous	
Alabama	4	1	5		7	10	17	12	1	13							1	2	12	685
Arkansas	1		1		5	2	7	4		4			1			4	1		1	371
Arizona	9	1	10		4	4	8	4		4	1					2	3			213
California	224	37	261	28	257	148	433	45	24	69	5	1	138	45	1	69	51	18	6	6,021
Connecticut	70	5	75	4	36	23	63	12	1	13		2	21	9	3	21	22	17	1	1,271
Delaware	5		5		4	4	8	2		2						3	3		1	213
Florida	39	6	45		5	2	7	7	1	8	1	1	13	3	2	7	4	2	128	1,135
Georgia	28		28	2	19	16	37	15		15		2	10	5		3	4	2	48	1,183
Idaho	3		3		1		1						2			3			1	115
Illinois	142	15	157	14	56	91	161	93	11	104	2	11	54	18	2	67	75	18	9	4,325
Indiana	113	13	126	1	62	36	99	65		65		3	37	7	3	7	8	6	1	2,231
Iowa	67	8	75		23	9	32	44	1	45	2		9	1		13	10	3	5	1,438
Kansas	95	17	112	1	33	14	48	39	1	40	2	2	7	6		12	4	1	5	1,786
Kentucky	37	5	42		26	8	34	27	4	31	3	1	6	4	2	8	9	4	5	1,136
Louisiana	12	1	13		30	6	36	11	1	12	1		3	4	1	22	4		33	1,099
Maryland	39	1	40	5	39	21	65	20	2	22		1	22	5		7	12	3	3	1,381
Massachusetts	245	14	259	9	101	57	167	45	11	56		9	45	37	1	93	68	18	12	3,527
Michigan	211	14	225	10	69	35	114	50	5	55	8	1	58	22	3	18	44	14	3	3,478
Minnesota	34	7	41		39	26	65	33	3	36		1	18	6		10	19	4	1	1,457
Missouri	69	8	77	9	33	40	82	44	2	46	2		50	13		23	11	15	4	2,642
Montana	6	1	7	1	5	2	8	6		6		3	2	1		6				236
Nebraska	16		16		23	11	34	16	1	17	1		5	1		6		2		777
Nevada					3	5	8				1		2				2			148
New Hampshire	27	1	28		17	4	21	8	1	9		1	9	1		9	3	4		453
New Jersey	139	16	155	16	81	70	167	80	20	100	3	10	55	22	9	46	51	15	7	3393
New Mexico					1		1		1	1			2							132
New York	361	59	420	52	170	381	603	248	42	290	5	43	154	106	26	168	200	70	20	10,230
North Carolina	52	4	56		6	10	16	8		8	1	1	6			3	4		21	1,200
N. Dakota	3		3		11	6	17	4		4	1		1				1			225
Ohio	220	14	234	7	88	64	159	241	12	253	3	7	95	20	1	41	36	21	2	4,375
Oregon	10	1	11		4	4	8	2		2		1	4	1		6	2			369
Pennsylvania	377	32	409	11	133	82	226	226	17	243	5	17	136	49	5	88	78	23	25	6,865
Rhode Island	31	6	37	2	17	11	30	17		17		1	10	6	1	11	3	2	2	545
South Carolina	20	3	23		5	1	6	3		3				5				2	8	602
South Dakota	9		9		13	2	15	4		4				2		3				302
Texas	65	8	73	6	91	45	142	41	1	42		5	31	12	1	22	13	10	23	5,253
Utah	17	1	18		3	2	5	1		1	1		10	1		1	6	1		236
Vermont	24	2	26		6	4	10	9		9		2	5	2		2	7		1	294
Virginia	73	2	75	1	20	9	30	28		28	1		22	4		8	9		2	1,726
Washington	20	3	23		31	16	47	23	1	24			11	2		17	8	1	1	724
West Virginia	30	1	31		14	6	20	31		31	1		11			8	4	4	1	773
Wisconsin	88	5	93	2	31	34	67	48	1	49	2		20	6		41	16	5	3	1,596
Dist. of Columbia	34	3	37	4	13	22	39	10		10	1	1	17	3		13	13			893
Line Total	3069	315		185	1635	1343		1626	165		53	127	1102	429	61	891	809	287	395	97,175
Group Total			3384				3163			1791										
Alabama, 1931	3		3			17	17	16	1	17			2	2		7	5			781
Arkansas, 1931	3	2	5	1		2	3	3		3			10			4	2			490
Arizona, 1931	2		2			16	16	4	1	5	6	2		1		16	2			403
California, 1931	77	64	141	28		379	407	116	47	163	105	14	166	81	8	207	122	30	99	10,048
Connecticut, 1931	50	22	72	6		67	73	25	6	31	11	8	50	22	6	61	39	18	8	2,252
Delaware, '31	3	4	7			8	8	9	3	12			1	1		6	7		4	344
Florida, 1931	20	16	36	1		14	15	13	4	17	5	2	33	4	1	24	9	4	4	1,455
Georgia, 1931	16	14	30	2		43	45	13	2	15	7	2	22	14	1	40	8	3	3	1,718
Idaho, 1931	4	3	7			5	5	9	2	11	7		8	2		12		1	3	352
Illinois, 1931	124	64	188	13		181	194	126	29	155	27	9	159	60	15	205	110	27	41	7,597
Indiana, 1931	79	35	114	3		119	122	95	12	107	12	4	52	28	26	58	25	7	14	4,021
Iowa, 1931	34	22	56	3		52	55	72	12	84	13	2	20	15	4	40	13	10	24	2,574
Kansas, 1931	27	15	42	2		19	21	33	4	37	2		10	4	2	27	2	10	11	1,403
Kentucky, 1931	38	16	54	2		36	38	53	6	59	9	1	5	28	9	23	12	6	13	2,033
Louisiana, 1931	15	7	22	1		23	24	11	3	14	5		1	11	1	47	6	3		1,243
Maryland, 1931	36	20	56	1		45	46	23	3	26		4	32	14	1	46	20	11	13	2,037
Mass., 1931	172	69	241	27		182	209	61	42	103	18	28	68	57	26	176	113	26	43	5,061
Michigan, '31	164	68	232	3		75	78	71	13	84	50	2	105	58	7	78	78	41	38	6,393
Minnesota, 1931	16	11	27	1		38	39	41	12	53	2		44	21		25	22	3	14	2,105
Missouri, 1931	54	23	77	5		41	46	65	18	83	2	2	45	31	22	77	36	12	42	3,816
Montana, 1931	5		5			5	5	6	1	7	1	4	2	4		6	2	2	5	317
Nebraska, 1931	8	3	11			32	32	37	9	46	4		26	5	3	13	5	3	1	1,322
Nevada, 1931	1	4	5			9	9	4	1	5	2		3	1		6	2	1		196
N. Hampshire, '31	13	9	22	3		21	24	17	7	24	5	4	11	6	2	23	13	4	4	807
New Jersey, 1931	105	62	167	31		185	216	92	53	145	21	12	92	83	89	222	170	25	78	6,236
New Mexico, 1931	1	1	2			1	1	2		2				1		3			3	197
New York, 1931	302	156	458	30		477	507	292	153	445	53	78	252	146	36	532	339	72	110	14,972
N. Carolina, 1931	22	18	40	2		23	25	21	1	22	5	1	10	4	1	6	12		6	2,093
N. Dakota, '31	5	3	8			8	8	16		16	5		3	1	2	3	1		6	443
Ohio, 1931	124	56	180	6		151	157	154	42	196	27	11	123	66	25	134	85	13	56	6,826
Oregon, 1931	4	6	10			23	23	11	3	14	4		20	3		24	2	8	8	825
Pennsylvania, '31	210	81	291	13		195	208	252	62	314	30	27	185	119	67	278	170	22	56	10,594
Rhode Island, '31	13	9	22	7		27	34	6	5	11	2	4	25	11	1	23	11	8	5	996
So. Carolina, 1931	15	3	18			8	8	1		1	2		2	1		1	4	1		893
So. Dakokta, 1931		2	2			12	12	10	3	13	3			4		4	2		5	525
Texas, 1931	30	24	54	7		82	89	46	5	51	2	2	47	25	7	59	31	23	15	4,273
Utah, 1931	9	14	23			16	16	8	2	10	3		14	6	2	15	4	1	3	487
Vermont, 1931	14	11	25			10	10	14	2	16	3		6	3		11	4	3	3	433
Virginia, 1931	43	25	68	6		34	40	47	12	59	3		17	21	5	32	20	3	7	2,662
Washington, 1931	10	10	20	2		66	68	26	6	32	11	2	17	7		40	5	6	19	1,365
W. Virginia, 1931	27	9	36			23	23	44	2	46	6		26	4	3	24	13	5	3	1,215
Wisconsin, '31	69	29	98	3		72	75	78	13	91	20		52	26	5	110	22	13	13	3,130
Dist. of Col., 1931	35	5	40	2		30	32	13	4	17		1	53	14	5	31	24	1	11	1,802
Line Tot'l, '31	2002	1015		211		2872		2056	606		493	226	1819	1015	382	2779	1572	436	791	119,405
Group Tot'l, '31			3017				3083			2662										

Machine Shop Committee Makes Helpful Suggestions

(Continued from Page 5)

machine shop is concerned, happens to be the owners of your customer garages. Why not give these garagemen the same consideration you give your salesmen by furnishing them the necessary details for them to intelligently sell your services? Our suggestion is this:

"Make a complete list of operations you are in a position to furnish in your machine shop. Then take each different motor and list a complete job of reboring, new pistons, pins, rings, in fact, a complete rebuilt job. List these by various types or makes of motors as well as models. On a four or six-page leaflet of a certain color, say light green, print these operations with the net prices to the garageman. This is the garageman's confidential net price sheet.

"Now, take another leaflet of a different color paper, say buff, and list all of these various operations and motors with the net prices to the car owner. Devote the first page or two of this leaflet to an explanation and picturization of a badly worn motor, showing pictures of badly worn rings and pistons, as well as cylinders, and show pictures of valves that are warped and badly pitted and perhaps a few lines of .005-inch and .008-inch thickness, so that the garageman can, in a few moments, help the car owner visualize just what is wrong with his car and then show the same parts properly fitted, with an explanation of how this has improved the operating condition of his motor.

"By doing this you have given the garageman something definite to sell, you have made it easy for him to show the car owner what he should have done and you have made it easy for the car owner to visualize just what is wrong with his motor and you have definite prices for the garageman to quote the car owner.

"It isn't at all unusual to walk into a jobbing establishment and have some one call up on the phone and ask for the price of overhauling a certain make of motor. Instead of being able to quote the price immediately, the jobber answering the phone will spend from fifteen to thirty minutes checking up prices on parts and operations and then call back to give the quotation.

"He should have all of these prices immediately available, and we believe the above suggestions, if worked out in detail to suit your own particular demands, will be a paying proposition, not only from the standpoint of additional work brought in but because it will give you added loyalty on the part of the garageman, because you will be giving the garageman a definite constructive service."

Duco Color Service Plans To Supply Color Range

(Continued from Page 6)

blues, for example, blue purple blue 43, blue purple blue 42, blue purple blue 32 and blue purple blue 33 we find the first two variations contrast in chroma, as do the second two. The two end colors and the two middle colors contrast in value and blue purple blue 43 represents a value and chroma contrast with blue purple blue 32, as does blue purple blue 42 with blue purple blue 33. In this way, by stocking only four colors, a car builder has recourse to six practical color combinations.

"Another practical virtue of colors arranged systematically is the protection afforded from obsolescence difficulties. With calibrated colors it is a comparatively simple matter to alter any color in any hue by adding another color of the same hue, providing the color added differs in value or chroma or both. By adding an equal amount of a color's complement, at the same value and chroma, a neutral may be obtained. Unequal proprotions of base color or complement produce good grays of slight hue characteristic, dependent upon which hue predominates. Purple blue, for example, mixed with yellow with purple blue predominating would make a warm bluish gray.

"Every so-called standard color name has many different interpretations. For example, there are more than eighteen different conceptions of what buff looks like, to judge from paint and textile color samples. Solferino, navy blue and russet are all traditional color names that tend to create confusion because no two people appear to agree on what these colors actually should be. How much simpler it is to comprehend, or describe, color when referring to a certain standard by the use of color's three dimensions. Solferino is a high value, medium chroma of red purple. How high the value, or how strong the chroma, can be accurately portrayed in numerical symbols so that a second person can know exactly just how the particular quality of solferino you may have in mind appears.

"The same is true of maroons. Maroon is a low value of red and of moderate chroma. Navy blue is dark purple blue extending from weak to moderate chroma strength. Russet is generally considered to represent a range from low to middle value of yellow red of weak to moderate chroma. There is no doubt but that traditional color names, such as Solferino, named in honor of France's defeat of the Austrians at Solferino, Italy, in 1859, mean much to a sales-conscious French dressmaker, and as a sales appeal factor, clever, descriptive-if-possible, color names are of great value, but for descriptive purposes, accurate notations mean more.

"After a color has been made bright to the point where its brightness or chroma strength appears to diminish with further additions of tinting mixtures, we know that its maximum chroma has been achieved. By comparing this color with the neutral scale, already described, it is easy to determine what steps of value the color most closely resembles. This procedure determines the value. In order to ascertain the chroma strength of a color arrived at in this way, it is necessary to have a disc finished in a neutral of identical value to that of the color. Fit the slot of the neutral disc to the slot of the disc finished in the strong chroma color in such a way as to make a V-shaped wedge of the neutral interpose the blue colored area. By revolving the discs on a rotating machine and experimenting with different percentages of neutral in the colored area, the number of equal steps of chroma present in the color will be divulged.

"For example, if five value neutral succesively imposed on the strong chroma color in 20, 40 and 60 degree areas appears to divide the strong chroma blue into even steps of calibration, it is certain that the original blue is five steps of chroma in strength. To determine the appearance of blue at five value and three steps of chroma from information arrived at in the manner just described, it is only necessary to make use of a 5-inch calibrated disc to mark off an area of 40 degrees. Arrange the two discs so that there is an area of 40 degrees of neutral 5 and 60 degrees of blue 55 showing, revolve the colors on the rotator and the resultant hue will be blue at five value and three chroma written B53 for convenience.

"It seems desirable at this point to touch upon some of the practical features to be made available through an exclusive use of calibrated colors. In the first place, any one color in a given hue will combine satisfactorily with any other variation in the same hue or in a complementary hue. All complementary color families that can be made durably in lacquer are present in this new color series. The complement of a color is determined by gazing intently at a representation of that color for about 10 seconds and then transferring the gaze to a plain white surface. After a second or two a pale after-image of the complementary color will appear for a short interval. The stronger the chroma of the color examined in this way the brighter the after-image. By looking intently at a bright red, for example, red's complement, blue green, will appear. Complementary colors are arranged directly opposite each other in the color circuit. (Equal areas of complementary colors of equal value and chroma mix to produce a neutral on the rotator.)

"Advantages other than those of convenience and economy accrue from having colors calibrated. For example, it is a relatively easy matter to determine just how large a proportion of a light value, bright chroma color is required to balance harmoniously with a large area finished in a dark or low value color, providing all possible light, bright colors are made available. In this connection the matter of color notation serves in good stead. By its use it becomes possible to comply with the formulas for color balance which read: Areas of complementary color used are inversely proportional to the product of their symbols.

"Any two opposite hues of the same value and chroma balance in equal areas.

"Any two opposite hues of the same value but of unequal chroma balance in areas which are inversely proportional to the strength of chroma of each.

"Any two opposite hues of unequal value of equal chroma balance in areas which are inversely proportional to the value of each.

"A polar planimeter can be used effectively to determine units or proportion. The number of square feet in the fender area of a car can be learned from a use of this instrument on a scale drawing; the body area of a car can be disclosed in much the same way. In this manner, areas for use in the formulas already discussed can be obtained.

"We have certain basic facts relative to effective color harmony at our disposal to commence with. We know, for example, that it is desirable to use as few hues as possible in any given combination; that maximum color contrast is achieved through (1) the use of a color with its complement, (2) the use of a high value color with a low value color, (3) the use of a strong chroma color in combination with a weak chroma color (poor contrast would be afforded through the use of white in combination with yellow red (orange) at medium to high value of any chroma) and (4) the use of warm colors with cold colors.

"Color balance through a use of these principles of color composition is by no means new. They were first employed with rare skill by the great artists of the world.

"The maximum strength of various representative color families varies and is interesting. Red is the brightest color of all. Its maximum chroma, in a lacquer medium, goes as far as fourteen steps at four steps of value. Yellow red, yellow red yellow, yellow and purple blue reach, respectively, thirteen, eleven, twelve and seven steps of chroma, but at different value levels. Blue green and blue are colors weakest in chroma. They both come to five chroma at three steps of value.

"The average automotive colorist has a tendency toward color sameness. For example, high value, medium chroma yellows (ivory) for accent or striping purposes, have been used on low value, strong chroma purple blue automobiles, with little or no attempt at variety, since 1923. This tendency to favor a certain color or color combination at the expense of other good color possibilities can be largely done away with when complete color variety is available to supply tools with which to work.

"Calibrated colors provide a complete assortment of high value, weak to strong chroma yellows, yellow red yellows and yellow green yellows, any one of which would make exceptionally effective accent colors for use with purple blues on motor cars. All other durable color families are provided with the same facile tools for embellishment. The ease with which this system of 'Duco Calibrated Colors' lends itself to motor car color problems is a factor to delight the man whose responsibility it is to see that automobiles are kept effectively colored to meet the mood of the moment."

Whose Problem Is the Used Car Problem?

(Continued from Page 4)

per cent. their initiative and leadership would result in a co-operative spirit among dealers that would, in a relatively short time, solve the used car problem for all time.

In conclusion, after ten years contacting dealers throughout a territory comprising practically the entire southern half of the United States, as an independent used car sales engineer, it is this writer's studied opinion that the retail automobile dealers feel and are convinced that their manufacturer does not care a tinker's dam whether the dealer makes or loses money. He feels that the manufacturer's maw is open for volume, volume and more volume on his new cars, and they are not interested as to whether the retail dealer's participation in securing that volume for the manufacturer is a profitable operation or not for the dealer.

The retail dealer, in facing his used car problem today, is confronting a situation that has been largely forced upon him by the manufacturers' high-pressure methods in their unremitting efforts to achieve an increasingly greater and greater volume, and he has a right to expect and he DOES expect the manufacturers to assist him in its solution.

Many hundreds of millions of dollars have been lost by the dealers in the past fifteen years on used cars. Losses that not only wiped out profits but absorbed capital.

Surely no fair-minded man would deny that a group of merchants who have suffered losses approximating a billion dollars on used cars are deserving of relief from the only source that, in the very scheme of things, can give any practical and permanent relief—the manufacturer—especially as the manufacturer will benefit as much or more than the dealer. It is a situation that must be relieved if the automobile merchant is to survive.

With all the vaunted brains, all the great leaders and salesmen in the automobile industry, it does seem that some of those high and mighty could and would evolve a plan that would bring relief to their dealers. It takes very little imagination to see how the manufacturer would profit more, within a few years, than the dealers. It is especially mystifying when one considers that the same problem was long ago solved by the typewriting and adding machine industries. In fact, they never allowed the evil to reach the proportions of a problem.

Mr. Reeves, in a recent article in your paper, states succinctly what might be done, but he doesn't give any means by which it might be made to work in a practical way. His thought has been carried out literally and in principle—that is the attempt was made, to this writer's knowledge several years ago in a number of cities—and miserably failed.

No doubt the motive behind the articles of other dealers and salesmen, like the motive behind this, is that some one of the really big, creative and constructive minds in the industry, if this abbreviated outline didn't click with them, might perhaps get some thought that might in turn, lead him into a line of thinking conducive to the solving of the most serious problem confronting the automobile dealers today.

It is certainly not impossible of solution, for it has been solved by the manufacturers in other industries whose dealers accept used equipment regularly as a cash credit on the sale of new machinery—solved equitably and profitably for all concerned—the customer, the manufacturer and for his dealer.

H. E. LUMLEY
933 Vista Bula St.,
Lakeland, Fla.

ON THE OTHER HAND

CAR LOADINGS RISE

New York, Oct. 25.—Carloadings reports of Western roads, which were published yesterday, affirmed predictions made in railroad circles last week that the upward trend in freight movement would continue during the week ended October 21. With grain loadings holding and with miscellaneous freight continuing to expand, three leading Western carriers reported loadings above the previous week.

Loadings on the Atchison, Topeka & Santa Fe for the week ended October 21 amounted to 30,593 revenue freight cars, compared with 29,291 cars in the previous week, an increase of 4.4 per cent., and with 33,196 cars in the like week a year ago, a decline of only 7.8 per cent. In the previous week the decline from a year ago was 10.4 per cent.

The Chicago, Milwaukee, St. Paul & Pacific reports total loadings in the week ended October 21 as 26,424 cars, against 26,249 cars in the previous week, an increase of .6 per cent., and with 30,845 cars in the same week last year, a drop of 14.3 per cent.

MILL ON DOUBLE SHIFT

Liberty, S. C., Oct. 25.—Plant No. 3 of the Easley Cotton Mills, which has been idle for some time due to insufficient orders, was put on a full time day and night schedule the past week.

MILLS ADD WORKERS

Smithfield, N. C., Oct. 25.—The Smithfield Mills, Inc., is on a full time schedule with both day and night shifts with D. M. Williams superintendent. Ninety to 150 operatives have been added to the payroll.

Milk

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